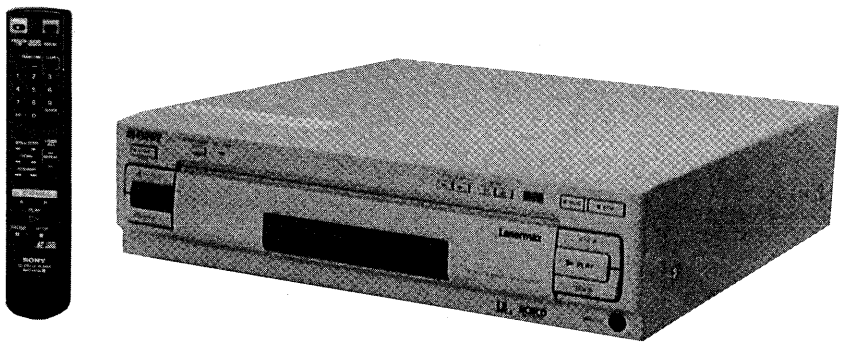
MDP-1700AR
RMT-M23A

SERVICE MANUAL

US Model
Canadian Model



SPECIFICATIONS

Type	CD/CDV/LD Player
Signal readout	Optical (Laser beam reflection)
Signal format system	EIA standard, NTSC color system
Playing time	

(minutes)

LD	CAV	30 cm (12 in) double-sided	60
		20 cm (8 in) double-sided	28
		20 cm (8 in) single-sided	14
	CLV	30 cm (12 in) double-sided	120
		20 cm (8 in) double-sided	40
		20 cm (8 in) single-sided	20
CD		12 cm (5 in) single-sided	74
		8 cm (3 in) single-sided	20
CDV		Audio portion	20
		Video portion	5
VSD		Video portion	5

Video specifications

Horizontal video resolution	425 lines
Signal-to-noise ratio	More than 49 dB

Input/output specifications

Video output	1.0 Vp-p, 75 ohms, unbalanced
Audio output	Stereo L, R Analog: 200 mVrms (1 kHz, 40% modulation) Digital: 200 mVrms (1 kHz, –20 dB)
BARCODE jack	MINI-DIN connector (6 pin)
VHF IN/OUT	75 ohms, unbalanced NTSC channel 3 or 4, switchable

External control interface

Interface	RS-232C (25-pin D-SUB type)

* Measured according to EIAJ (Electronic Industries Association of Japan) standards.

— Continued on next page —

Digital audio specifications

Frequency response	4 Hz to 20kHz (±0.5 dB)
Signal-to-noise ratio	More than 115 dB (EIAJ)*
Dynamic range	More than 99 dB (EIAJ)
Wow and flutter	Below measurement limit (±0.001% W.PEAK) (EIAJ)

CD/CDV/LD PLAYER

SONY®

Power requirements

Power requirements	120VAC 60Hz
Power consumption	40 W
Mass	10 kg (22 lb)
Dimensions	Approx. 430 × 117 × 429 mm (w/h/d) ($17 \times 4\,5/8 \times 16\,5/8$ in)
Operating temperature	+5 °C to +35 °C
Ambient humidity	5% to 90%

Remote Commander RMT-M23A

Principle of operation	Infrared pulse
Power requirements	3 V DC (2 size AA batteries)
Dimensions	Approx. 44 × 23.5 × 214.4 mm (w/h/d) ($1\,3/4 \times 15/16 \times 8\,1/2$ in)
Mass	Approx. 100 g (3.5 oz) (including batteries)

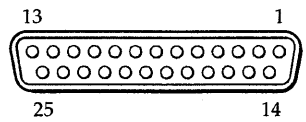
Supplied accessories

Remote Commander RMT-M23A (1)
Size AA (R6) batteries (2)
Audio/Video cable
(phono plug 3↔phono plug 3) (1)
Barcode command sheet (1)

Design and specifications are subject to change without notice.

Signal assignment

RS-232C



Pin No.	Signal
1	FG (Frame ground)
2	TxD (Transmit data)
3	RxD (Receive data)
4 ┐	RTS (Request to send)
5 ← ┘	CTS (Clear to send)
6	DSR (Data set ready)
7	GND
20	DTR (Data terminal ready)

Each signal conforms to the RS-232C specifications (Output level ON: more than +5 V, OFF: less than –5 V)

Note

Check the RS-232C pin assignment of the external computer to be connected. There is a modem mode and terminal mode for pin assignment. The RS-232C pin assignment for this player is the terminal mode.

Note: For checking the movement by the barcode operation, please use the barcode remote commander.

WARNING !!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION, BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 25 cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

CAUTION:

The use of optical instrument with this product will increase eye hazard.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
6. Check the B+ voltage to see it is at the values specified.
7. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

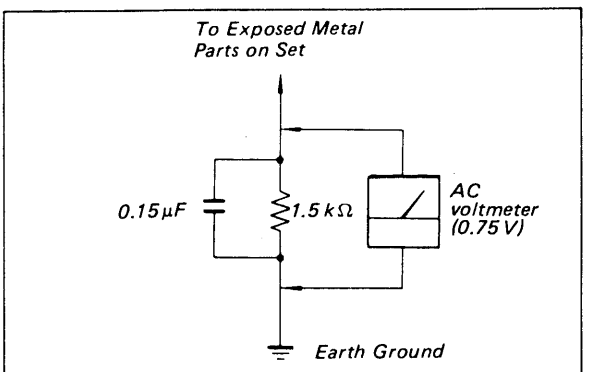


Fig. A. Using an AC voltmeter to check AC leakage.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

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Introduction

This introduction explains the features and principles of operation of the Multi Disc Player (MDP).

Introduction to Your Player

The Multi Disc Player is capable of playing laser discs (LDs), compact discs (CDs), and compact disc videos (CDVs). As operating procedures are the same or similar for all discs, each procedure applies to all disc types.

To Play a Laser Disc (LD), Compact Disc (CD) or Compact Disc Video (CDV)

With the MDP-1700AR, you can playback both sides of an LD without turning it over. Also unique to LD play are STILL/STEP for CAV LDs (see page 24) and FRAME/TIME search.
Most operations for CDs are comparable to those of LDs. The procedures for CLV LDs and CDs are also for the CDV's video and audio sections respectively. VSDs are CDVs that have no audio section.

You can control the MDP-1700AR using an external computer, optional Barcode Scanner or Barcode Remote Commander.

What to Do First

Once you have read through this page, read "The Principles of Operation" (page 5), then go ahead and connect up the Multi Disc Player to your television, stereo system and/or external computer using the connection diagrams on pages 10, 11 and 12. You will then be ready to play a disc.

1-1

The Principles of Operation

The MDP-1700AR allows you to play discs by simple operation. Although some functions of the player vary depending on what type of disc (laser disc, compact disc or compact disc video) you are playing, keep in mind that the majority of the buttons on the player and Remote Commander have been designed to achieve a comparable effect for each type of disc. The following paragraphs briefly summarize what the basic Multi Disc Player functions allow you to do.

Primary Functions	include the traditional functions of disc players.
Variable Speed Functions	let you vary play speed so that you can easily locate ("search") scenes or tracks as you watch or listen.
Repeatable Functions	memory functions that let you repeat playback. Because the player locates a point on the disc and starts playing according to your request, some repeatable functions also serve as "search" functions.
Auxiliary Functions	additional functions that simply add to what you can do with the Multi Disc Player.

Primary Functions	*Variable Speed Functions*	*Repeatable Functions*	*Auxiliary Functions*
Power	Speed Scan (SCAN)	Chapter/Track Search (ACS/AMS)	Sound Quality Functions: (AUDIO MONITOR, ANALOG/CX)
Open/Close	Still/Step Scan (STILL/STEP)	Frame/Time Search (FRAME/TIME)	On-Screen Display (DISPLAY)
Play		Repeat Play (1/SIDE/ALL, REPEAT)	Key Lock (KEY LOCK)
Pause			Screen Color (SCREEN COLOR)
Stop			
Side A/B			

This section is extracted from instruction manual.

SECTION 1
GENERAL

MDP-1700AR

Playing Disc Types

The MDP-1700AR Multi Disc Player integrates the functions of three machines into one: laser disc, compact disc, and compact disc video player. Below follows an explanation of the kinds of discs the Multi Disc Player can play.

The MDP-1700AR Plays Three Classes of Optical/Digital Discs*

The MDP-1700AR Multi Disc Player can play all three types of optical discs currently available for home entertainment. The following table illustrates their types and features.

Disc Class	Disc Logo	Disc Type	Size	Play Side	Play Time	
Laser Discs For movies, operas, and concerts	LASER DISC / LaserDisc	LD Single	8 in. (20 cm)	Single Side	CAV	14 min
					CLV	20 min
		8-inch LD	8 in. (20 cm)	Double Side	CAV	28 min
					CLV	40 min
		12-inch LD	12 in. (30 cm)	Double Side	CAV	1 hr
					CLV	2 hr
Compact Discs For music	COMPACT disc DIGITAL AUDIO	CD Single	3 in. (8 cm)	Single Side	20 min	
		CD	5 in. (12 cm)	Single Side	74 min	
Compact Disc Videos For music videos and educational material (Digital Audio)	CD VIDEO	CDV	5 in. (12 cm)	Single Side	Video+Audio 5 min Audio 20 min	
	VIDEO SINGLE DISC	VSD	5 in. (12 cm)	Single Side	Video+Audio 5 min	

Multi Audio Discs

digital AUDIO MULTI AUDIO

On laser discs bearing these logos, the analog tracks are recorded in multiplex, and the digital tracks are recorded in stereo.

* *These apply only to those discs recorded in the NTSC standard. The MDP-1700AR cannot play CED, VHD discs or PAL video discs, CD-ROM, CD-GRAPHICS, CD-I discs, aluminum-lined discs or MD (MiniDisc) discs.*

Bar code makes operation easier

The LBS-1150 Laser Barcode Scanner (not supplied) or the RM-B1700 Barcode Remote Commander (not supplied) allows you to control this unit without pressing any buttons.
Be sure to use the bar code charts as follows:

LaserBarcode 2 — This equipment accepts software with the LaserBarcode mark or the Laser Barcode 2 mark.

BCD Bar Code CD — This mark expresses compatibility with Bar Code CD systems. Please use only bar codes displaying this mark.

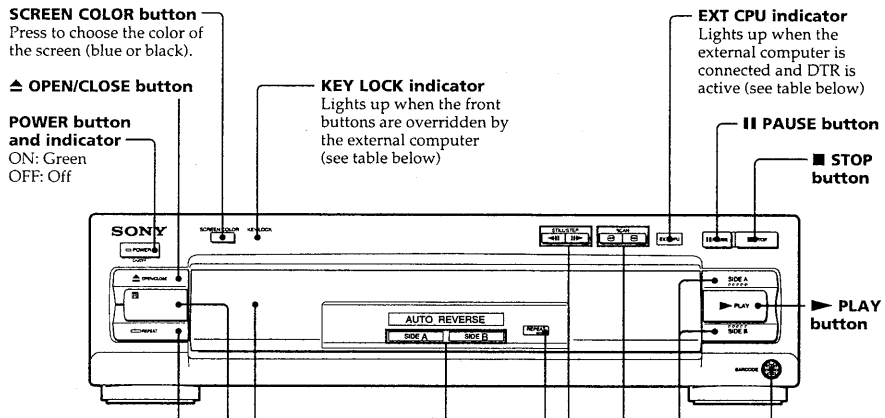
The MDP-1700AR can be connected to external computer

Connect the Multi Disc Player to the external computer via Standard RS-232C cable to play LDs and CDs. For further details, see "How to Connect the External Computer and TV Monitor" on page 12, and read the MDP-1700AR Interface manual (not supplied).

Installation and Connection

Front and Rear Panel Controls and Supplied Accessories

Front Panel



SCREEN COLOR button
Press to choose the color of the screen (blue or black).

⏏ OPEN/CLOSE button

POWER button and indicator
ON: Green
OFF: Off

KEY LOCK indicator
Lights up when the front buttons are overridden by the external computer (see table below)

EXT CPU indicator
Lights up when the external computer is connected and DTR is active (see table below)

II PAUSE button

■ STOP button

► PLAY button

REPEAT button
Press the button to repeat playing a disc.

Remote Commander sensor
Point the Remote Commander here to control the player.

Front Cover
Automatically slides down when you press the OPEN/CLOSE (⏏) button, and the disc tray comes out.

SIDE A/SIDE B indicator
Lights up to indicate the current disc side
- SIDE "A" lights up while playing side A of an LD, a CD or CDV.
- SIDE "B" lights up while playing side B of an LD.
- SIDE A or B flashes while the player searches for the beginning of side A or B of an LD.
- Both the indicators go off when no disc is loaded.

BARCODE jack
Use to connect the optional Laser Barcode Scanner

SIDE A/SIDE B buttons
Press to start playing from the beginning of side A or B of an LD.

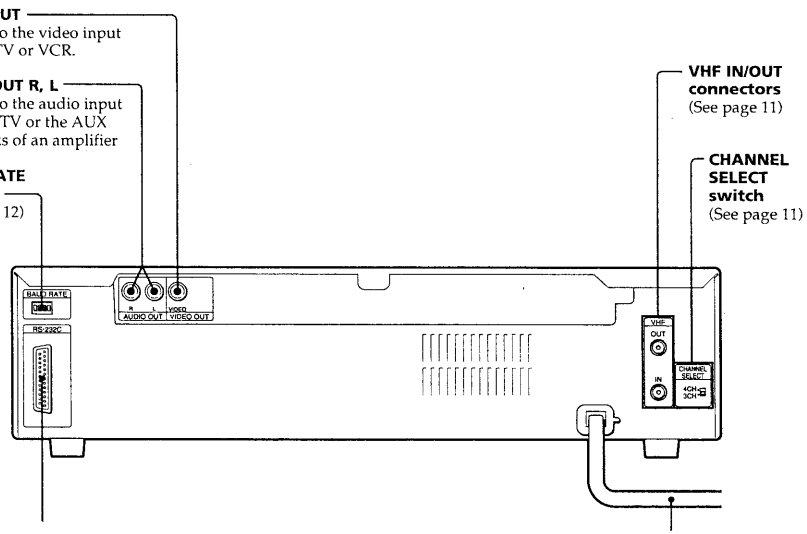
⏮/⏭ SCAN buttons
Press the right button to scan forward; press the left button to scan backward.

STILL/STEP buttons
Use these buttons to view frame-by-frame action.

REPEAT indicator
Lights up when the repeat function is activated.

KEY LOCK indicator	EXT CPU indicator	Operating equipment
Lit	Lit	Operated only by the external computer
Unlit	Lit	All the equipment (the player, Remote Commander, external computer and optional Barcord Scanner or Barcode Remote Commander) can be used.
	Unlit	The external computer cannot be used. All other equipment can be used.

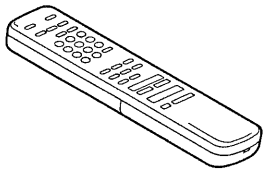
Rear Panel


VIDEO OUT
Connect to the video input jack of a TV or VCR.
AUDIO OUT R, L
Connect to the audio input jacks of a TV or the AUX input jacks of an amplifier
BAUD RATE selector
(See page 12)
VHF IN/OUT connectors
(See page 11)
CHANNEL SELECT switch
(See page 11)
RS-232C connector
Connect to the external computer.
AC power cable

Accessories

Make sure the shipping box contains the following accessories:

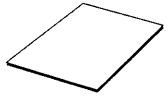
RMT-M23A Remote Commander



Audio/Video connecting cable
(phono 3 ↔ phono 3)

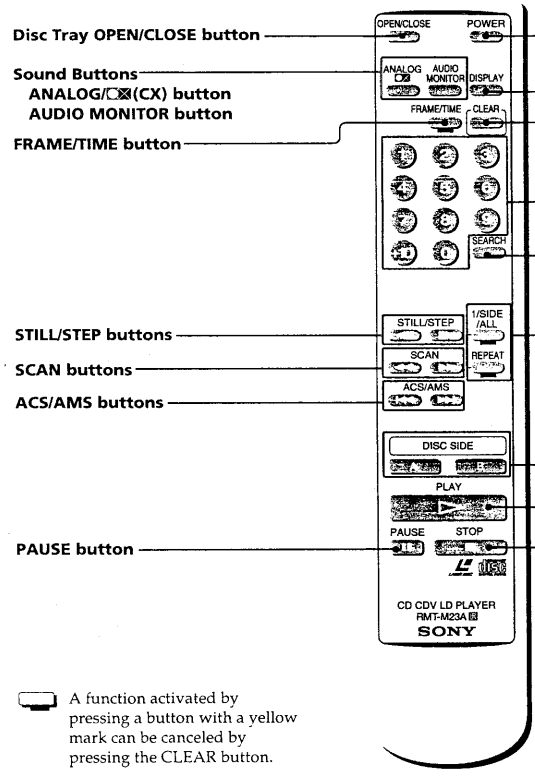
Two AA (R6) batteries

Bar Cord command sheet



Controls on the Remote Commander

You can use the Remote Commander to control the player or the identical buttons on the player itself.



A function activated by pressing a button with a yellow mark can be canceled by pressing the CLEAR button.

Note on the remote commander operation
To remote control this unit, use the supplied remote commander. Commanders with following mark, such as the RM-2001, cannot be used to control the MDP-1700AR.

PRO

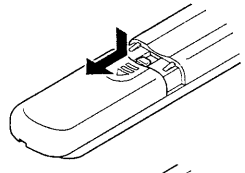
To Activate the Remote Commander

Open the back cover, and insert two size AA (R6) batteries according to the polarity indicated in the illustration. The batteries will last for about 6 months. If the range of the Remote Commander becomes noticeably short, replace all the batteries with new ones. If the Remote Commander is not to be used for a long time, remove the batteries to avoid damage from possible battery leakage.

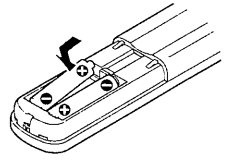
Remote Commander Precautions

- Do not let sunlight or powerful artificial light fall directly on the Remote Commander sensor on the front panel (of the player) as it may interfere with Remote Commander operation.
- Use size AA (R6) batteries only.

1



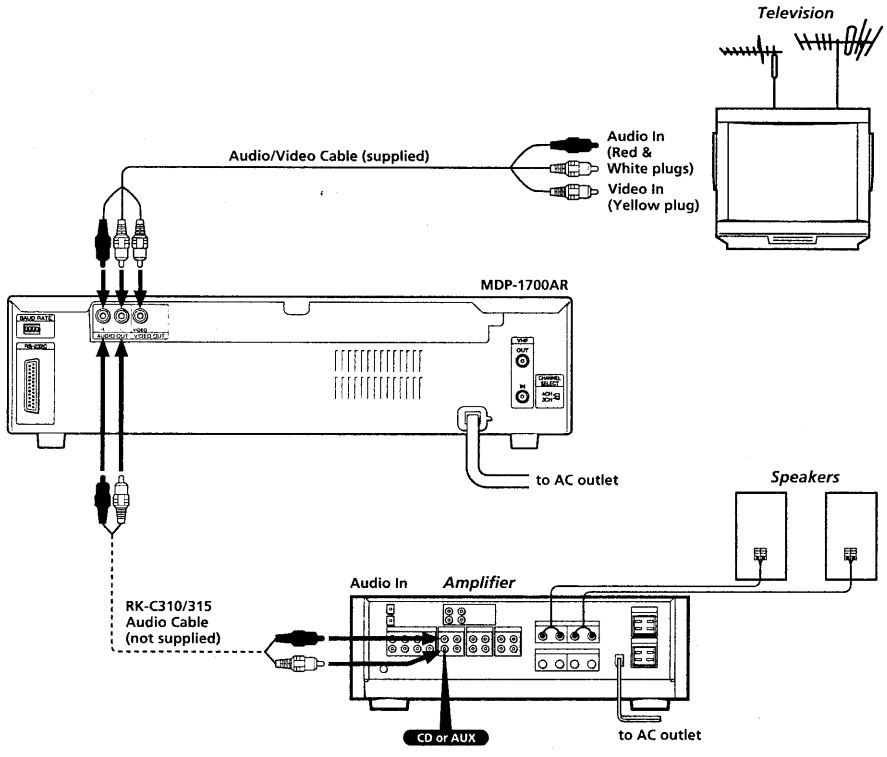
2



Insert two size AA (R6) batteries.

How to Connect the Television and Audio Equipment

To play LDs or CDVs, hook up a television to the Multi Disc Player. Take out the supplied audio/video connecting cable (yellow, red and white plugs). Use this to connect the player to the television.* Once you have hooked-up the television, set the input selector on the TV to "Video". To achieve full stereo sound from your Multi Disc Player, hook up a stereo system. Use an RK-C310 (or RK-C315) audio connecting cable (not supplied) to connect the Multi Disc Player to your amplifier or receiver. Before connecting or disconnecting any of the cables, turn off all equipment.



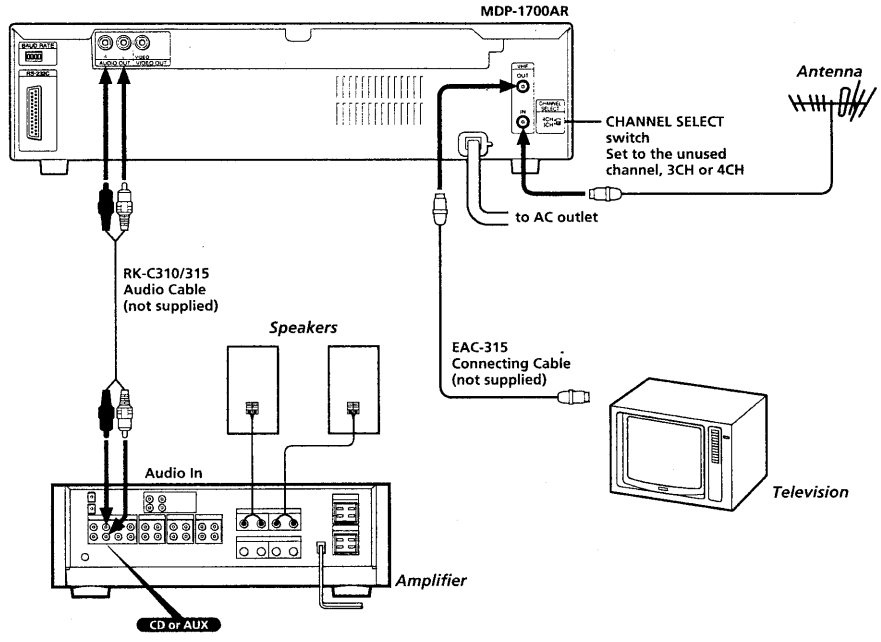
Connecting Precautions

- Make sure all equipment is turned off before connecting or disconnecting any cables.
- Connection methods may differ; when in doubt about a connection consult the TV or VCR manufacturer's manual.
- If the sound or picture is disturbed by noise, try moving the equipment farther apart.
- Firmly insert plugs into the jacks. A loose connection may cause noise.
- To prevent later interference with TV broadcast reception, turn off all equipment connected but not currently in use.
- When listening to a radio broadcast, switch off the Multi Disc Player to get better reception.

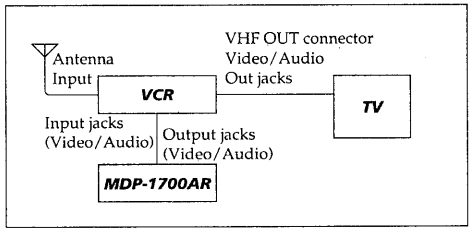
* *If the TV only has a monaural phono jack for audio input, use a VMC-910/915 Connecting Cable (not supplied).*

When Your TV Does Not Have Audio/Video Inputs

To connect a TV that does not have audio/video input, use the VHF connectors. Disconnect the antenna cable from your TV and connect it to VHF IN at the rear of the player. Connect VHF OUT to the antenna input of your TV using an EAC-315 connecting cable (not supplied). After connecting the cable, set the CHANNEL SELECT switch to an unused channel, 3CH or 4CH. When using VHF OUT, the audio signal of the disc is monaural. To obtain stereo sound, connect a stereo system.



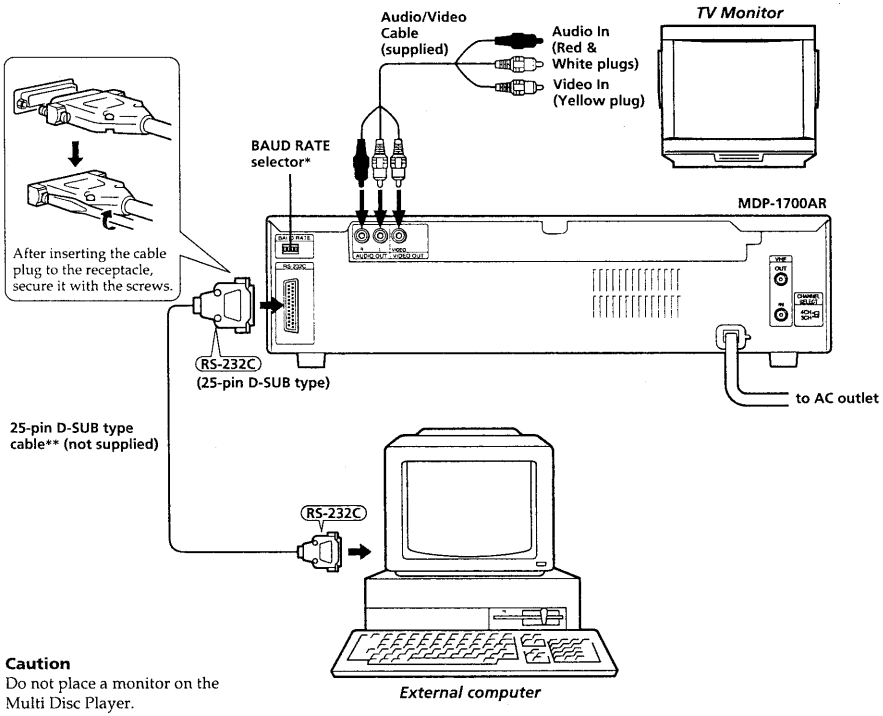
Television/VCR Hook-Up



Why is it necessary to select channel 3 or 4?
The player outputs a VHF broadcast signal from VHF OUT. Selecting an unused channel avoids interfering with regular broadcasts. When watching regular TV programs, turn the player off so that you can obtain a better picture. If TV picture quality is not satisfactory, refer to the manufacturer's manual and adjust the reception.

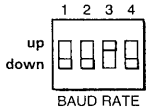
How to Connect the External Computer and TV Monitor

Use a standard RS-232C interface cable (not supplied) to connect the computer to the Multi Disc Player.



Caution
Do not place a monitor on the Multi Disc Player.

* **Note on the BAUD RATE selector**
Select the data transmission speed on the RS-232C line. The baud rate can be set to 9600, 4800, 2400, or 1200 baud. Make sure that the speed set on this player matches that on the computer. The selector is set to 4800 when shipped.



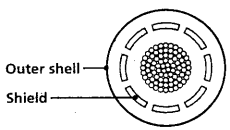
Example: The baud rate is set to 4800.

Switch setting				Baud rate
1	2	3	4	
up	down	down	down	1200
down	up	down	down	2400
down	down	up	down	4800
down	down	down	up	9600

Set the switches to the desired positions using the tip of a ball-point pen or a seimilar object.

For details on connecting to an external computer, refer to operating manual of the computer.

** **RS-232C interface cable for an external computer connection**
Interface cable to be connected to the I/O connector (RS-232C, 25-pin D-SUB type) must be shielded as follows:



About pin assignment, see page 25.

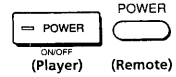
To Play a Disc

This section shows you how to conduct all the procedures associated with playing both LDs and CDs (CDVs).

How to Load and Play a Disc

After you have connected the Multi Disc Player to the TV and/or stereo system, you can begin playing a disc. Locate the POWER, OPEN/CLOSE, and PLAY buttons on the Remote Commander or the front panel of the player.

1 Turn on the multi disc player.

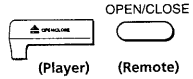


Press POWER on the player or Remote Commander.
You can also turn on the player by pressing OPEN/CLOSE (⏏) on the player. When using the Remote Commander, press POWER.

2 Turn on the TV and stereo system.

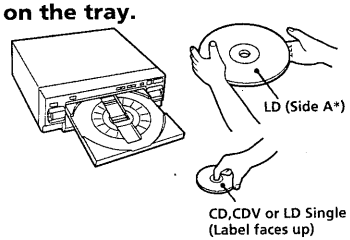
TV: Set the input selector on the TV to "Video".
Stereo System: Turn on the amplifier or receiver and select CD or AUX for audio output.

3 Open the disc tray.



Press OPEN/CLOSE (⏏).
The front cover of the player slides down and the disc tray comes out.

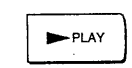
4 Place a disc on the tray.



Carefully center a single disc on the tray.
If you insert more than one disc, or if the disc is not seated properly, it may not play or it may damage the player.

When playing a CD, do not use a CD stabilizer as it may cause damage to your disc or player.

5 Start playback.

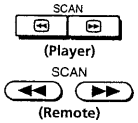


Press PLAY (►).
The disc tray closes and the disc starts playing.**
You can also start playing by pressing the disc tray to close it.

Do not transport the player while playing a disc as it may cause damage to the disc.

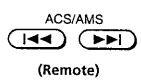
* *When playing an LD, the player determines that the upper side of the LD is side "A," and the other side is "B," regardless of the label "A" or "B" printed on the disc.*
** *When playback of the upper side of an LD (side A) ends, the other side (side B) starts playing automatically.*

To Advance or Reverse .....



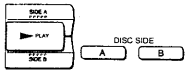
Hold down SCAN (⏪(◀◀) or ⏩(▶▶)).

To Advance or Go Back a Chapter or Track at a Time ....



Press ACS/AMS (I◀◀ or ▶▶I) on the Remote Commander.

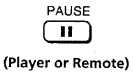
To Start From the Beginning of Each LD Side .....



Press (DISC) SIDE A to play the upper side of the LD from the beginning.

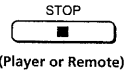
Press (DISC) SIDE B to play the other side of the LD from the beginning.*

To Interrupt Playback .....



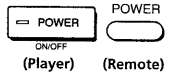
Press PAUSE (II).
The sound mutes, the TV screen goes blank and "PAUSE" appears on it. To resume playback, press PLAY (▶).

To Stop Playback .....



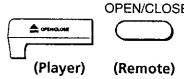
Press STOP (■).

To Stop Playback and Turn the Power Off .....



Press POWER on the player or Remote Commander.

To Stop Play and Remove the Disc.....

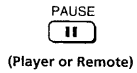


Press OPEN/CLOSE (⏏).
Remove the disc and press ⏏ again to close the empty tray.

---

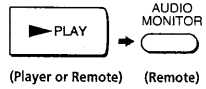
* *When playback of LD side B ends, the player returns to the beginning of side A. When playing a CAV disc, the picture freezes. When playing a CLV disc, the screen goes blank. When playing a CD, playback stops if you press (DISC) SIDE B.*

To Pause the Player Just Before Starting .....



Press PAUSE (II) after doing step 4 on page 13.
The tray closes, "PAUSE" appears on the TV screen, and the player waits at the start of the disc until you press PLAY (▶). If you want to play side B of an LD, press PLAY (▶), then (DISC) SIDE B.

To Play a Stereo Disc or a Second Audio Program (SAP) Disc.....



Press PLAY (▶), then press AUDIO MONITOR on the Remote Commander.
This function alternates the sound output on a disc that has been recorded with two sound tracks, such as bilingual discs.

The procedure below indicates how the output and the display changes with each press.
The active track appears for three seconds on the TV screen. When you select 1/L (or 2/R), the sound of the left (or right) channel is output from both speakers.

Procedure	Screen message	Output Sound	
		Stereo Disc	SAP Disc
1 Press PLAY (▶).	No message	Stereo (Both channels)	Soundtrack 1 (left channel) Soundtrack 2 (right channel)
2 Press AUDIO MONITOR.	1/L	Left channel	Soundtrack 1 (left channel)
3 Press AUDIO MONITOR again.	2/R	Right channel	Soundtrack 2 (right channel)
4 Press AUDIO MONITOR again to return to stereo status.	1/L 2/R	Stereo (Both channels)	Soundtrack 1 (left channel) Soundtrack 2 (right channel)

To Switch from Digital to Analog Sound (for LDs only*) .....

Press ANALOG/CX on the Remote Commander to switch the player to analog or digital sound. Digital affords a better quality sound reproduction. If the LD contains a digital sound signal, the player automatically sends that output to the amplifier or receiver. To switch to analog sound, press ANALOG/CX on the Remote Commander. "♪ ANALOG" appears on screen for three seconds. To return to digital sound, press ANALOG/CX until "♪ DIGITAL" appears on screen. With certain discs there may be a difference in volume.

LDs with a CX(CX) Label .....

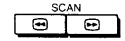
Discs bearing the CX label are recorded with the CX noise reduction system, which gives lower noise levels and higher dynamic range on analog sound. The player detects most CX discs and activates the CX noise reduction system automatically. When playing a CX disc which does not contain a code to activate the CX noise reduction system, press ANALOG/CX on the Remote Commander until "CX ON" appears on screen. The CX noise reduction system will be activated.

* *All CDs and CDVs output digital, not analog sound.*

How to Search for a Particular Point on a Disc

To find a particular point, play the disc in reverse or forward at high speed.* The sound is automatically muted while scanning an LD.** You can monitor sound while scanning a CD. Locate the SCAN (⏪/⏩ or ◀◀/▶▶) buttons.

To Scan in Forward or Reverse .....



(Player)

(Remote)

Hold down SCAN (⏩ or ▶▶) to scan a disc forward.
Hold down SCAN (⏪ or ◀◀) to scan a disc in reverse.

To Resume Normal Playback .....

Release SCAN (⏪/⏩ or ◀◀/▶▶).

* *A certain amount of visual noise and instability is inevitable while scanning an LD or the video section of a CDV.*
** *When scanning a CLV LD or the video section of a CDV, frames are skipped.*

1-7

Understanding Displays and Messages When Playing Discs

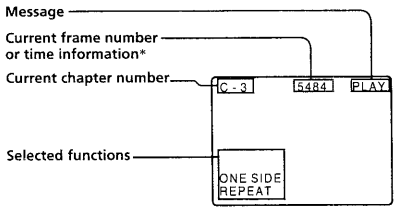
You can check the player operating status or disc information on the TV screen. Locate the DISPLAY button on the Remote Commander.

To View On-Screen Information .....

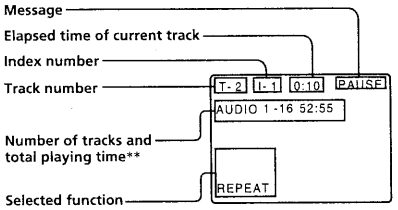
(Remote)

Press DISPLAY on the Remote Commander.
The tables below are keys to the messages that appear on the right of the screen.

Display for LD



Display for CD or CDV



Message *(Examples for LD)*

Screen Display	Current Status of the Player
OPEN	Disc tray open
CLOSE	Disc tray closed
PLAY	Playing LD
STOP	Operation stopped
PAUSE	Operation momentarily stopped
⏪/⏩	Speed scanning
SEARCH	Searching

Message *(Examples for CD or CDV)*

Screen Display	Current Status of the Player
OPEN	Disc tray open
CLOSE	Disc tray closed
PLAY	Playing CD or CDV
STOP	Operation stopped
PAUSE	Operation momentarily stopped
⏪/⏩	Speed scanning
SEARCH	Searching

To Turn Off the Display .....

Press DISPLAY again.

* *When playing a CAV LD, the current frame number appears. When playing a CLV LD, the total elapsed time appears. CLV LDs not indicating time data to the second, indicate two-digit numbers such as "22:".*
** *When playing a CDV, the number of the track and total playing time of the video section also appear.*

How to Search by Chapter/Track Numbers

LDs are divided into sections called "chapters". CDs are divided into sections called "tracks". Chapters or tracks are usually listed on the jacket or label of the disc. By entering the desired chapter/track number, you can have the player find the chapter/track and play it. Use ACS/AMS (I◄◄ /►►I) —Automatic Chapter Sensing/Automatic Music Sensing—to advance or reverse a chapter at a time. Locate the number keys and the ACS/AMS (I◄◄ /►►I) buttons on the Remote Commander.

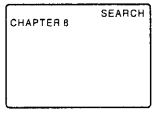
To Locate a Particular Chapter or Track (Chapter/Track Search)

For example, to locate chapter 8, press "8" on the Remote Commander.*

8 (Remote)

Press one of the number keys on the Remote Commander corresponding to the chapter/track you want to play.

The player starts searching for Chapter 8.



The player finds Chapter 8 and starts playing from the beginning of Chapter 8.

To Enter a Number Greater Than 10

+10 → X

Press +10 and one of the number keys.

Do this to make a numerical sum. For example, to enter 14, press +10 and 4; to enter 30, press +10, +10, +10 and 0.

+10 → 4 ..... "14"

+10 → +10 → +10 → 0 ..... "30"

If you make a mistake while entering numbers, press CLEAR on the Remote Commander, then enter the correct numbers.

To Check the Current Chapter/Track Number

DISPLAY (Remote)

Press DISPLAY on the Remote Commander to display the chapter/track number in the upper left-hand corner of the screen. If the LD does not contain chapter numbers, the number is not displayed.

To Advance or Go Back a Chapter/Track at a Time (Skip Search)

ACS/AMS I◄◄ ►►I (Remote)

Press ACS/AMS (I◄◄) on the Remote Commander once to return to the beginning of the current chapter/track.
Press ACS/AMS (►►I) to advance to the beginning of the next chapter/track.
Press ACS/AMS (I◄◄) twice before the picture reappears to return to the beginning of the previous chapter/track.
Hold down ACS/AMS (I◄◄ or ►►I) for continuous skip search.

To Resume Normal Playback

The player automatically resumes playback from the beginning of the selected chapter/track.**

* *Chapter Search does not function properly if the LD does not contain chapter numbers, or the chapter number entered does not exist.*
** *In addition to normal play mode, you can conduct Chapter/Track Search and Skip Search while in Freeze-Frame, Repeat or Pause mode. When the specified chapter or track is located after the search, playback continues in the same mode.*

How to Search by Frame Number or Time —Frame/Time Search (only for LDs)

This function can only be used for LDs. Video scenes are counted as a series of still pictures or "frames". The player keeps track of the number of frames that have been played from the beginning of the disc to the current position. Similarly, the player also keeps track of the elapsed playing time from the beginning of the disc. To play from a particular frame or time, use the Frame/Time Search function. Locate the FRAME/TIME, SEARCH buttons, and number keys on the Remote Commander.

On CAV (standard-play) discs, enter a frame number.
On CLV (extended-play) discs, enter the time.*

To Enter the Elapsed Frame or Time

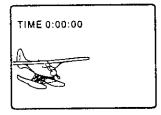
1 Press FRAME/TIME on the Remote Commander.

FRAME/TIME (Remote)

The screen displays "00000" (for CAVs) or "0:00:00" (for CLVs).

CAV (standard-play) disc

CLV (extended-play) disc



2 Enter the desired multi-digit number corresponding to the frame or time you want to find.

Enter five digits for CAVs.
Enter four digits for CLVs displaying the time to the second.
Enter two digits for CLVs displaying the time to the minute.

Sample Entry for CAV Discs
To locate frame number 12340, press the number keys in the order on the right:

1 → 2 → 3 → 4 → 0

Sample Entry for CLV Discs
To locate the 12-minute, 5-second point, press the number keys on the Remote Commander in the order on the right:

1 → 2 → 0 → 5

If you pressed the wrong key, press FRAME/TIME to clear the number, then enter the correct number.

3 Press SEARCH on the Remote Commander.

SEARCH (Remote)

Play starts from the time or frame specified in step 2.**

To Check the Frame/Time Numbers

DISPLAY (Remote)

Press DISPLAY on the Remote Commander.
The current frame or current time number appears.

To Cancel Frame/Time Search

CLEAR (Remote)

Press CLEAR on the Remote Commander before pressing the SEARCH button.

* *"CAV" or "CLV" should be noted somewhere on the disc jacket.*
** *In addition to normal play mode, you can conduct Frame/Time Search while in Freeze-Frame, Repeat or Pause mode. When the specified frame or time is located after the search, play continues in the same mode.*

How to Play Frame-by-Frame (only for CAV LDs)

Once you have found a particular scene on a CAV LD, you can examine the progression of that scene by advancing or reversing the action one frame at a time (Step Play).* Locate the STILL/STEP (◄II/II►) buttons on the Player or Remote Commander.

To Play One Frame at a Time (Step Play)

1 Press STILL/STEP (◄II or II►) once.

STILL/STEP ◄II II►
(Player or Remote)

The frame freezes.

2 Press STILL/STEP (◄II or II►) repeatedly.
To reverse ◄II
To advance II►

STILL/STEP ◄II II►

Each press shifts the image one frame backward or forward.
Hold down the button for continuous frame-by-frame action.

To Resume Normal Play .....

►PLAY
(Player or Remote)

Press PLAY (►).

Extended-Play (CLV) Discs .....

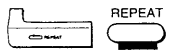
Step Play is not possible with CLV discs. When STILL/STEP is pressed, the message "CLV SIDE A (or B)" appears.

* *This function can only be performed on CAV LDs.*

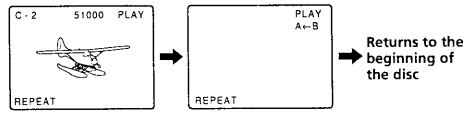
How to Replay the Same Selections

These instructions show you how to set the player to play the same scenes or selections over and over until you signal the repetition to stop. You can replay both sides, a single side or one chapter of an LD, and a whole disc or a single track on a CD. Locate the REPEAT button on the player or Remote Commander and the 1/SIDE/ALL button on the Remote Commander.

To Repeat the Whole Disc (Whole Disc Repeat) .....

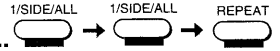


Press REPEAT.
The REPEAT indicator on the player lights up and "REPEAT" appears on the screen for three seconds. When playing an LD, the player repeats playing both disc sides, side A to B. When playing a CD or CDV, the player repeats playing all the tracks on the disc.

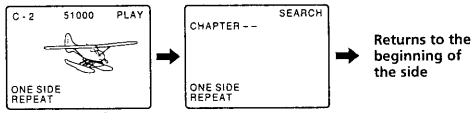


At the end of the disc

To Repeat the Current Side of the LD (One Side Repeat) .....

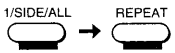


Press 1/SIDE/ALL on the Remote Commander twice, then press REPEAT.
"REPEAT" and "ONE SIDE" appear on the screen for three seconds.* The player repeats playing the current disc side.



At the end of one side of the disc

To Repeat the Current Chapter or Track (Single Repeat) .....

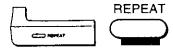


Press 1/SIDE/ALL once, then press REPEAT.
"REPEAT" and "SINGLE" appear on the screen for three seconds. The current chapter repeats continuously. If you press 1/SIDE/ALL once and do not press REPEAT, the player plays the current chapter/track once, then stops.

To Check the Replaying Status .....

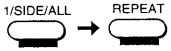
Press DISPLAY on the Remote Commander.
Playing status information appears on the TV screen as shown above .

To Cancel Whole Repeat .....



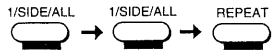
Press REPEAT.**

To Cancel One Side Repeat .....



Press 1/SIDE/ALL once, then press REPEAT.**

To Cancel Single Repeat .....



Press 1/SIDE/ALL twice, then press REPEAT.**

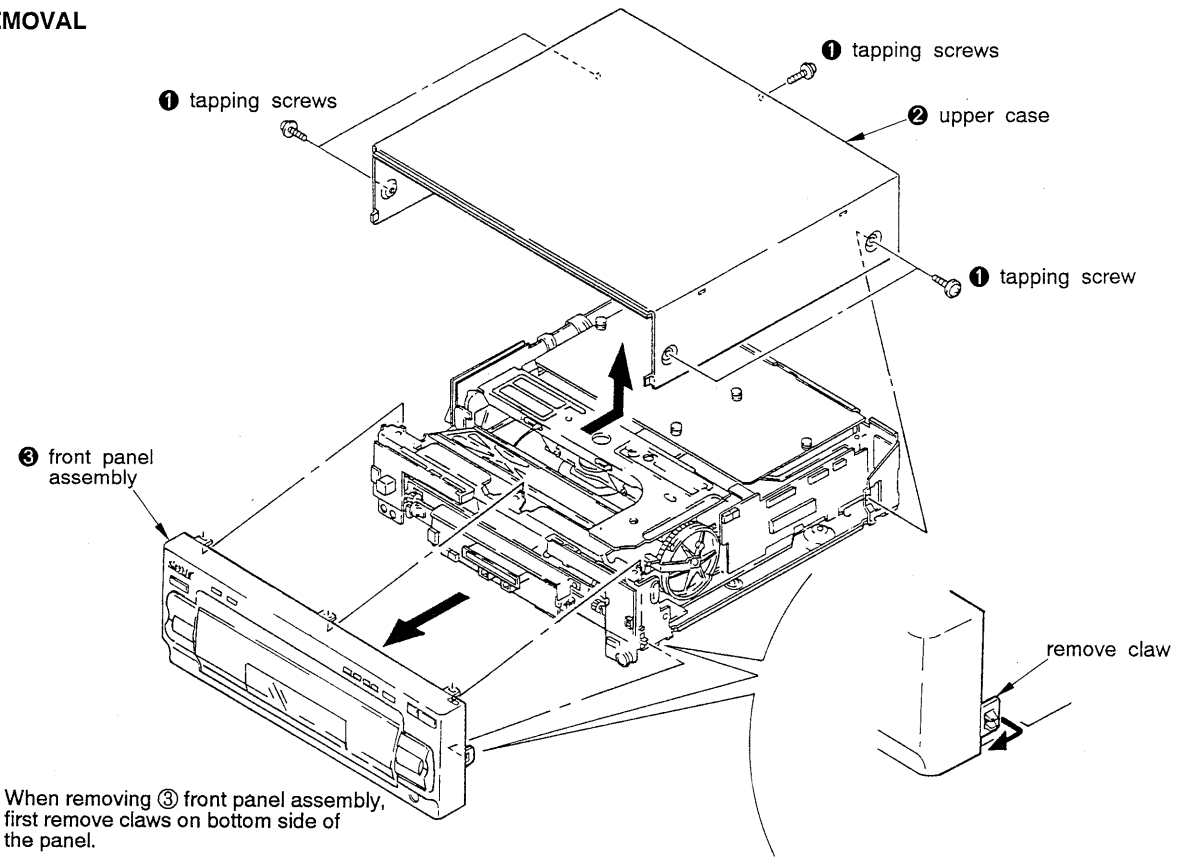
* *"ONE SIDE" appears only when playing an LD.*
** *You can also cancel Whole Disc Repeat, One Side Repeat and Single Repeat by pressing CLEAR.*

SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

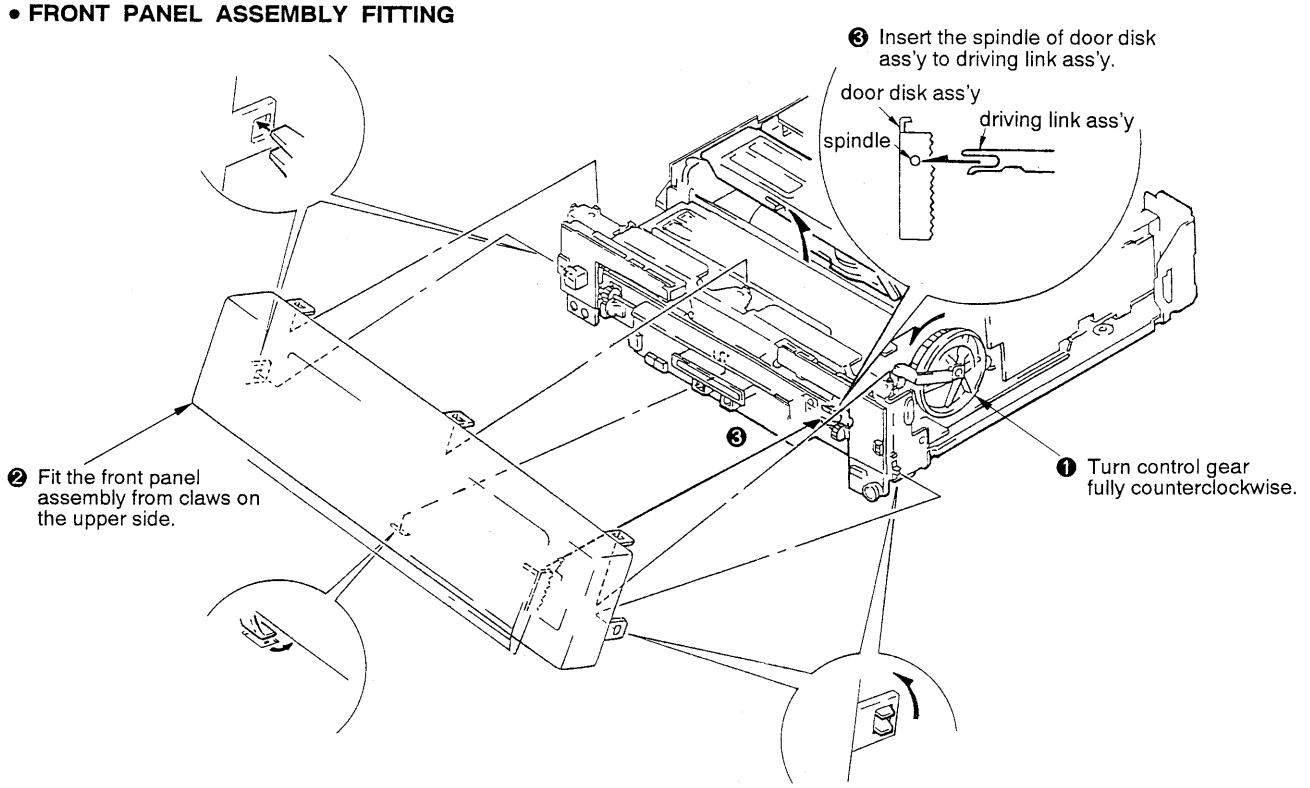
2-1. UPPER CASE, FRONT PANEL ASSEMBLY

• **REMOVAL**

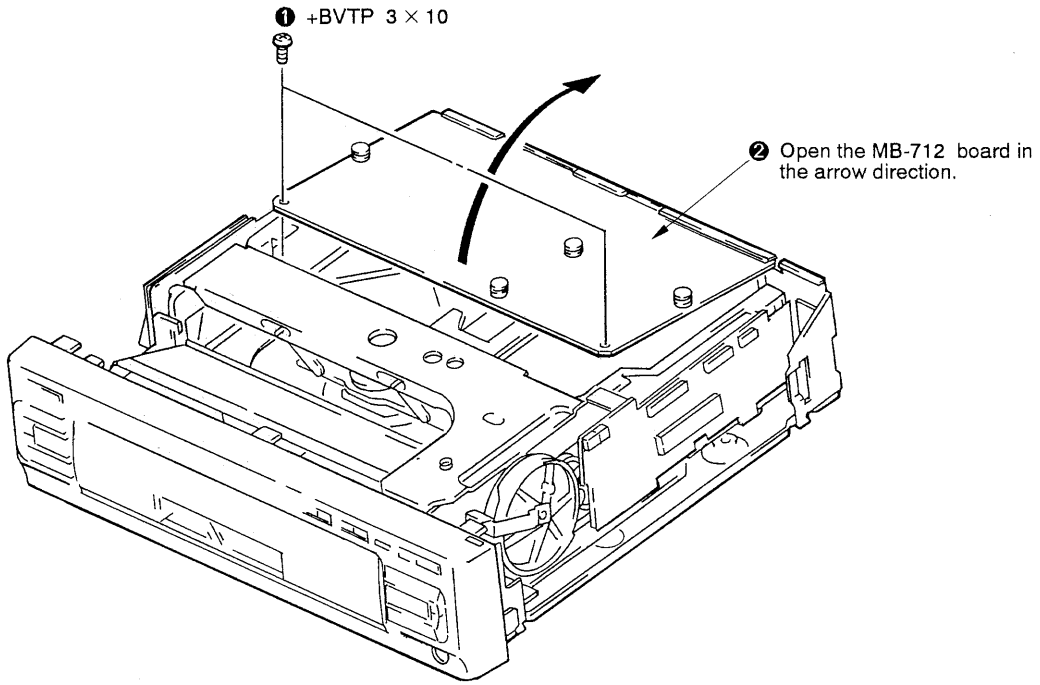


Note: When removing ③ front panel assembly, first remove claws on bottom side of the panel.

• **FRONT PANEL ASSEMBLY FITTING**

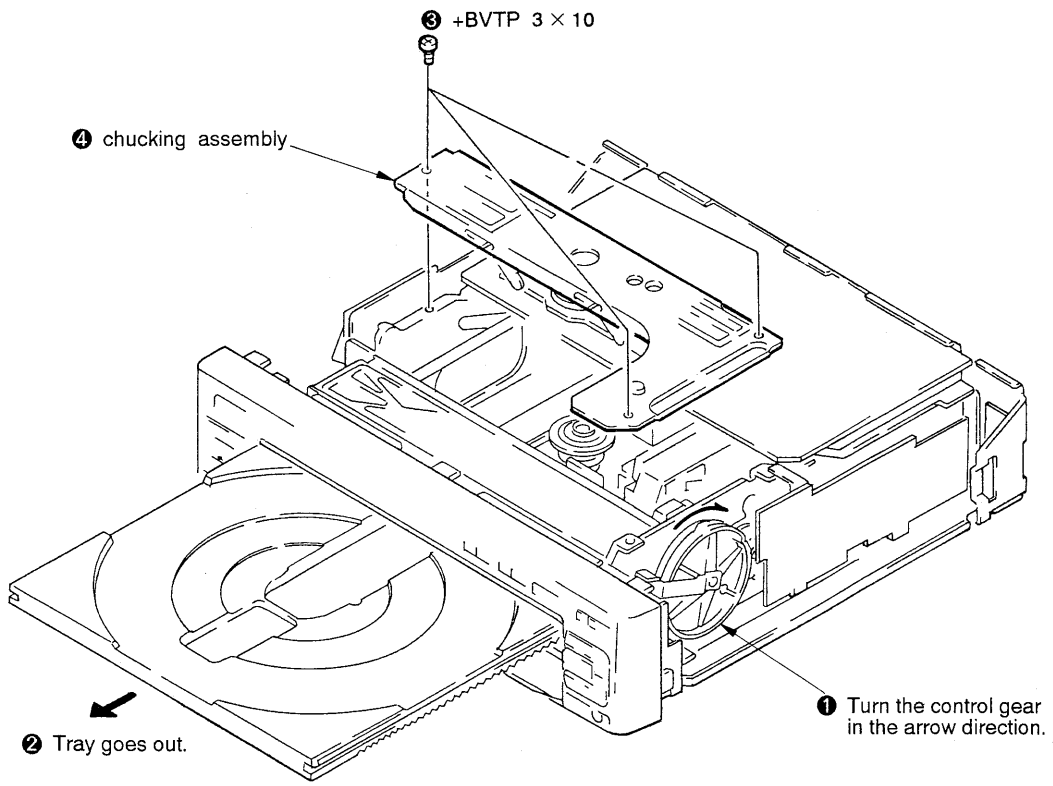

❸ Insert the spindle of door disk ass'y to driving link ass'y.
door disk ass'y
driving link ass'y
spindle
❸
❷ Fit the front panel assembly from claws on the upper side.
❶ Turn control gear fully counterclockwise.

2-2. OPENING OF MB-712 BOARD

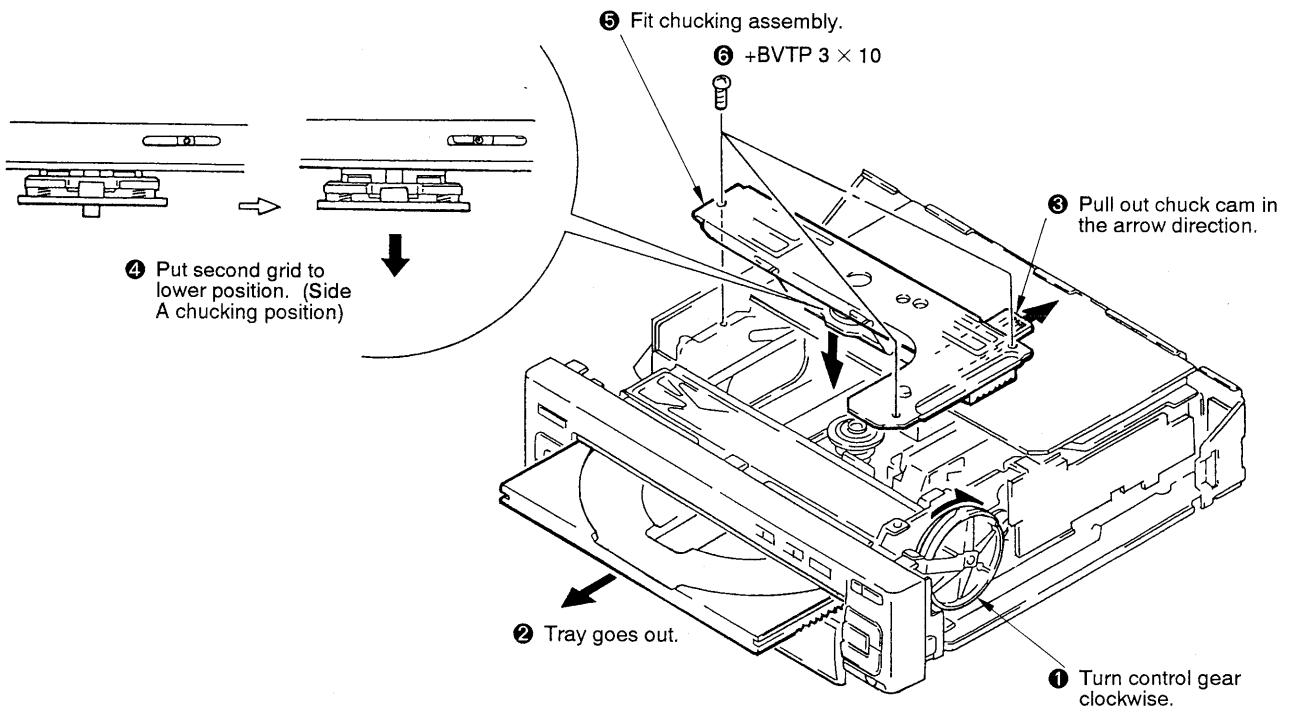


2-3. CHUCKING ASSEMBLY

• **REMOVAL**

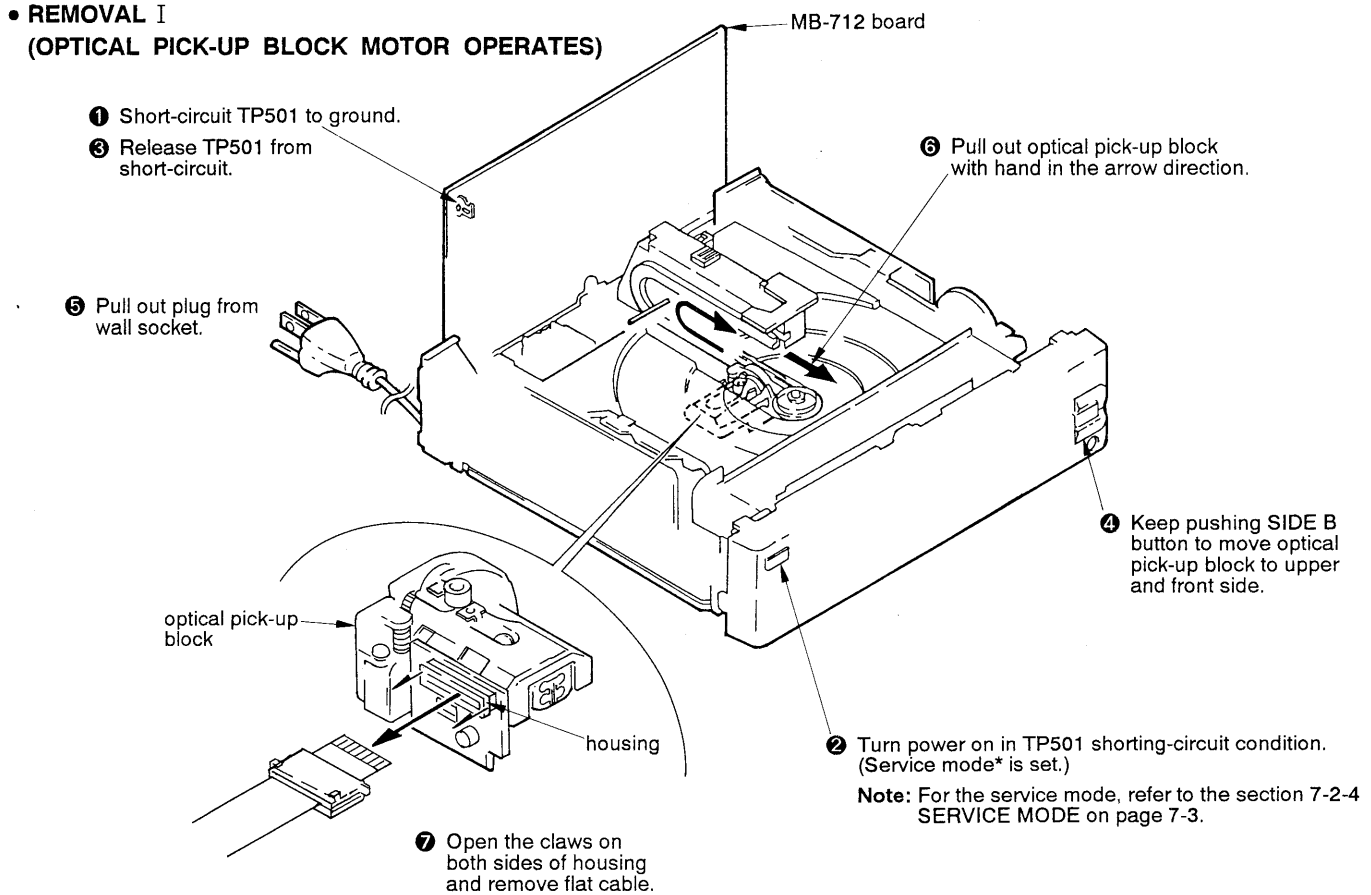


• **FITTING**

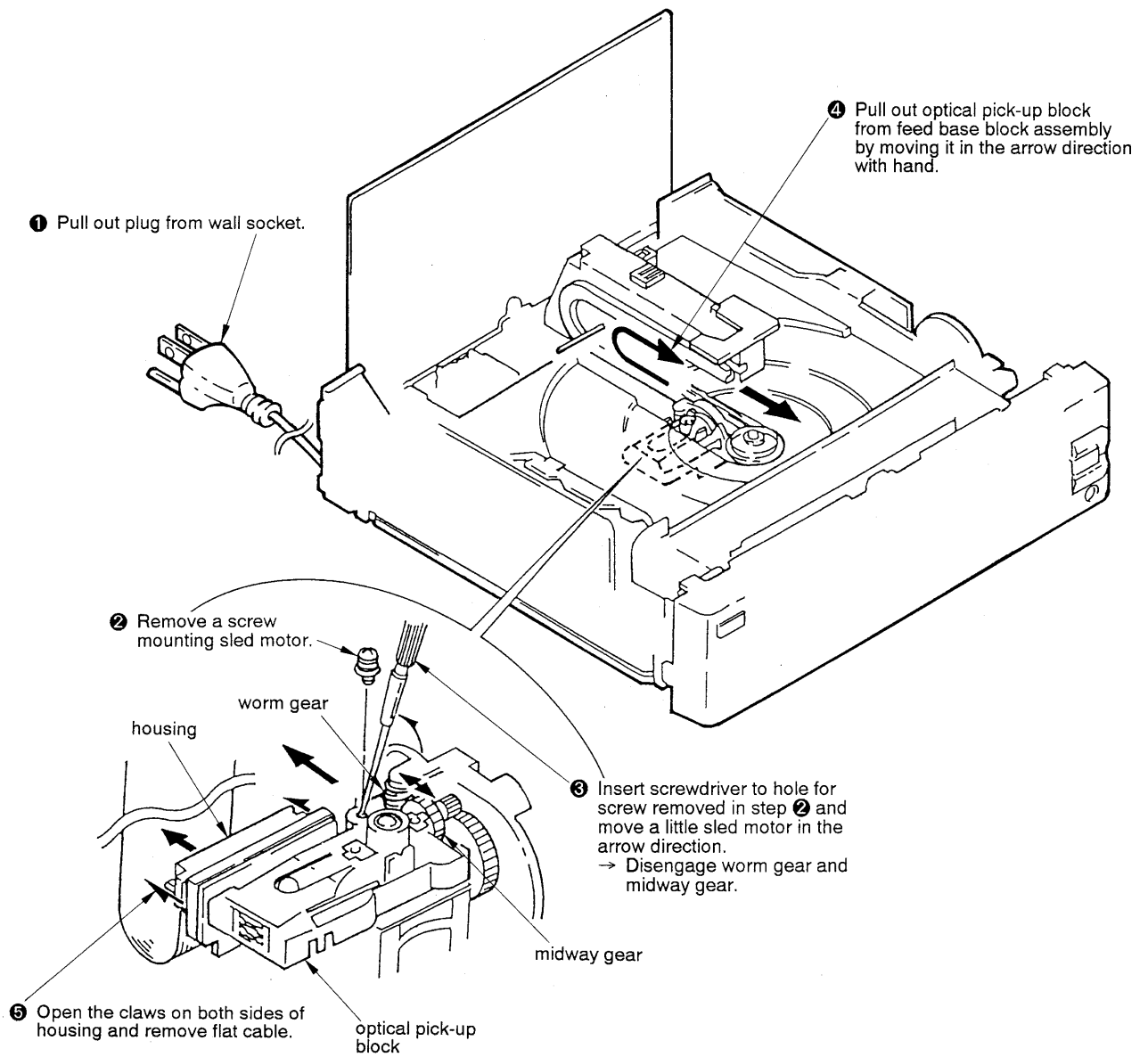

❺ Fit chucking assembly.
❻ +BVTP 3 × 10
❸ Pull out chuck cam in the arrow direction.
❹ Put second grid to lower position. (Side A chucking position)
❷ Tray goes out.
❶ Turn control gear clockwise.

2-4. OPTICAL PICK-UP BLOCK

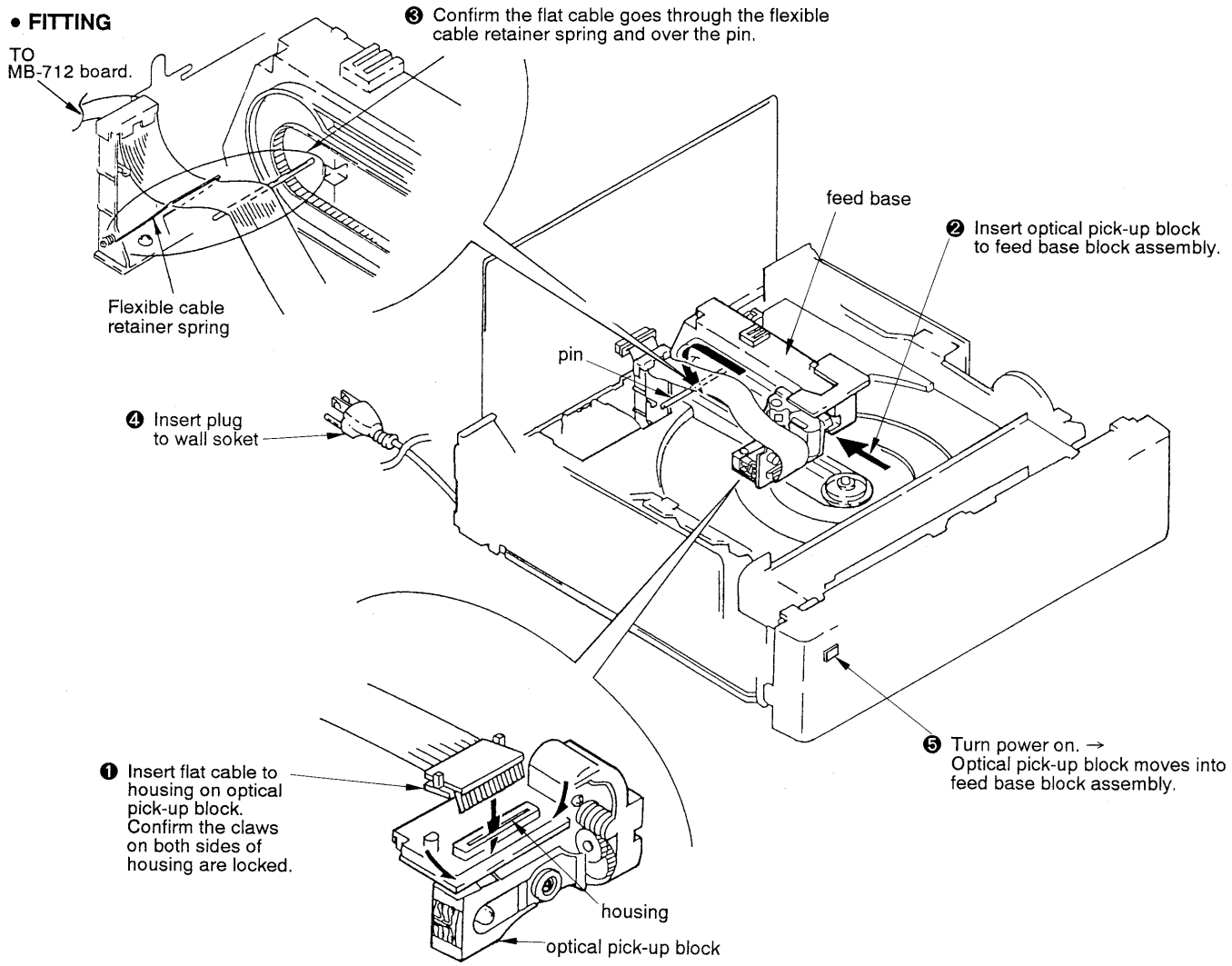
• **REMOVAL** I
(OPTICAL PICK-UP BLOCK MOTOR OPERATES)


MB-712 board
❶ Short-circuit TP501 to ground.
❸ Release TP501 from short-circuit.
❻ Pull out optical pick-up block with hand in the arrow direction.
❺ Pull out plug from wall socket.
❹ Keep pushing SIDE B button to move optical pick-up block to upper and front side.
optical pick-up block
housing
❷ Turn power on in TP501 shorting-circuit condition. (Service mode* is set.)
Note: For the service mode, refer to the section 7-2-4 SERVICE MODE on page 7-3.
❼ Open the claws on both sides of housing and remove flat cable.

• **REMOVAL II**
(OPTICAL PICK-UP BLOCK MOTOR DOESN'T OPERATE)

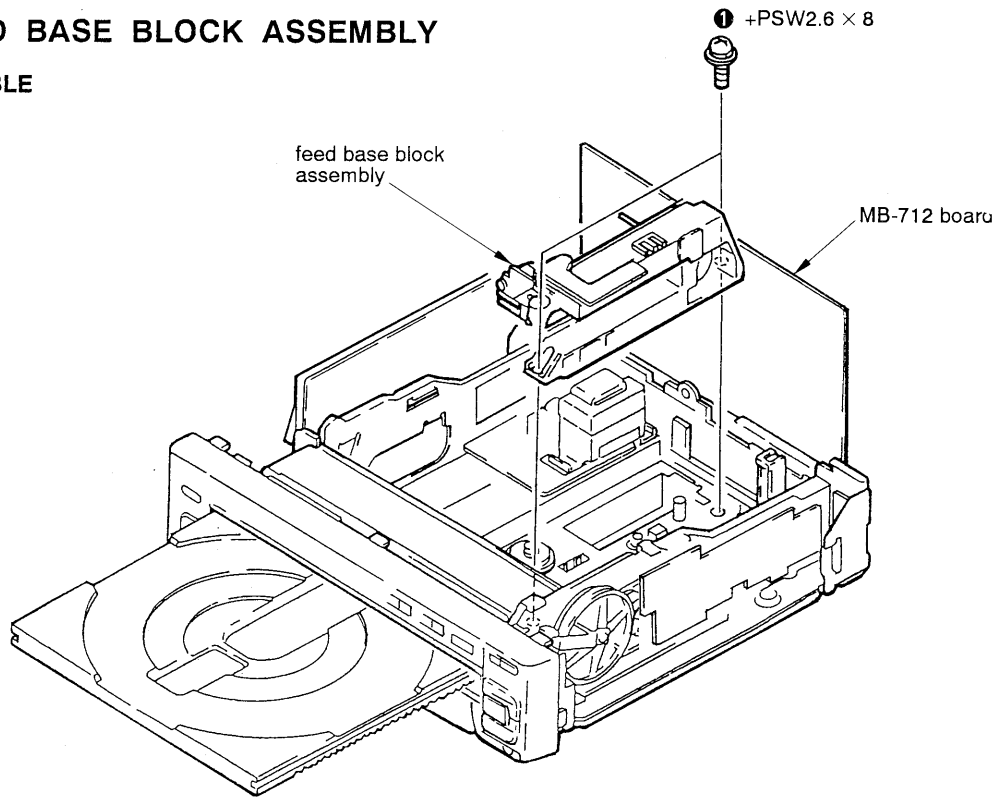

❶ Pull out plug from wall socket.
❹ Pull out optical pick-up block from feed base block assembly by moving it in the arrow direction with hand.
❷ Remove a screw mounting sled motor.
worm gear
housing
❸ Insert screwdriver to hole for screw removed in step ❷ and move a little sled motor in the arrow direction.
→ Disengage worm gear and midway gear.
midway gear
❺ Open the claws on both sides of housing and remove flat cable.
optical pick-up block

• **FITTING**

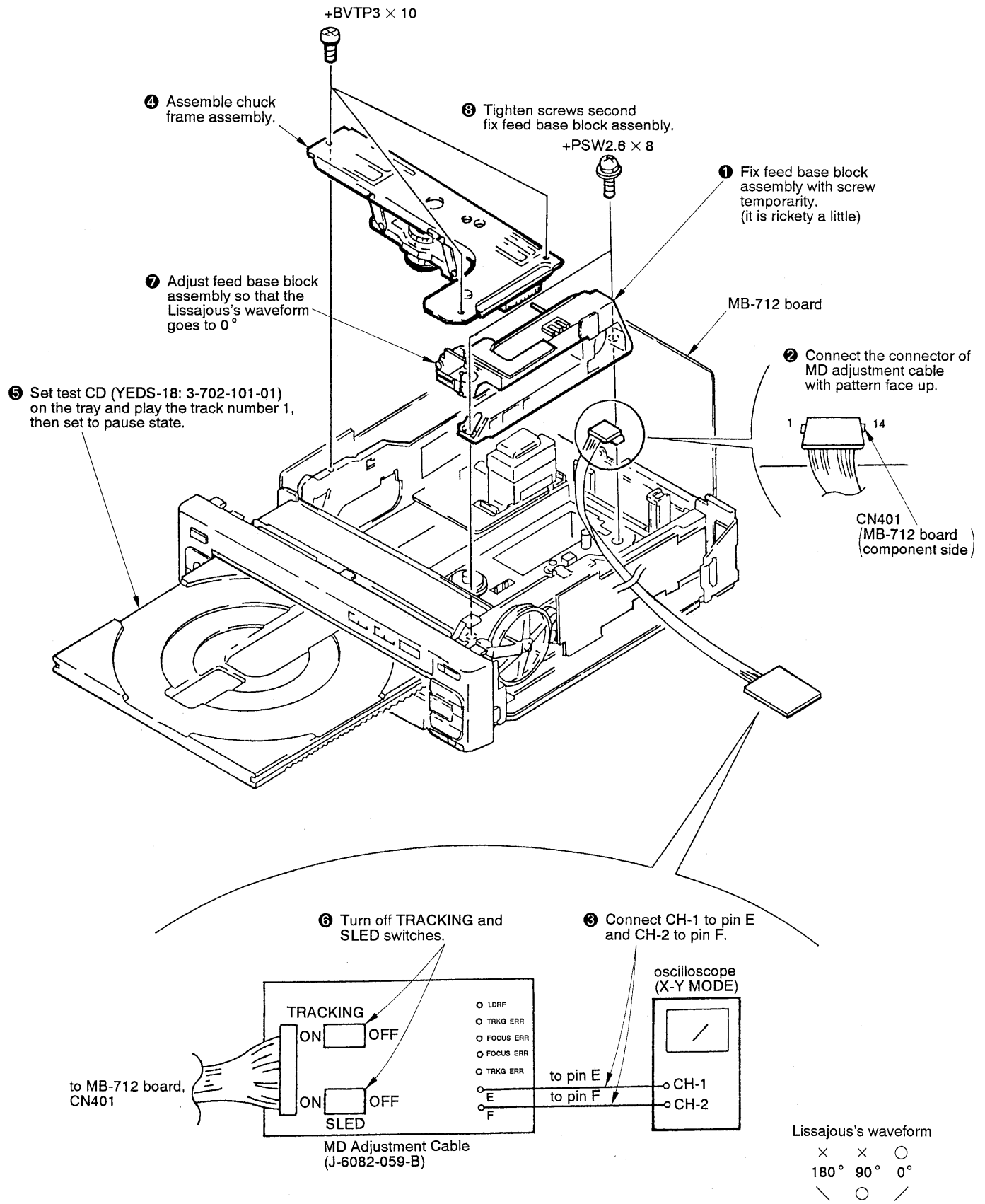

TO
MB-712 board.
❸ Confirm the flat cable goes through the flexible cable retainer spring and over the pin.
feed base
❷ Insert optical pick-up block to feed base block assembly.
Flexible cable retainer spring
pin
❹ Insert plug to wall soket
❶ Insert flat cable to housing on optical pick-up block. Confirm the claws on both sides of housing are locked.
❺ Turn power on. →
Optical pick-up block moves into feed base block assembly.
housing
optical pick-up block

2-5. FEED BASE BLOCK ASSEMBLY

• **DISASSEMBLE**

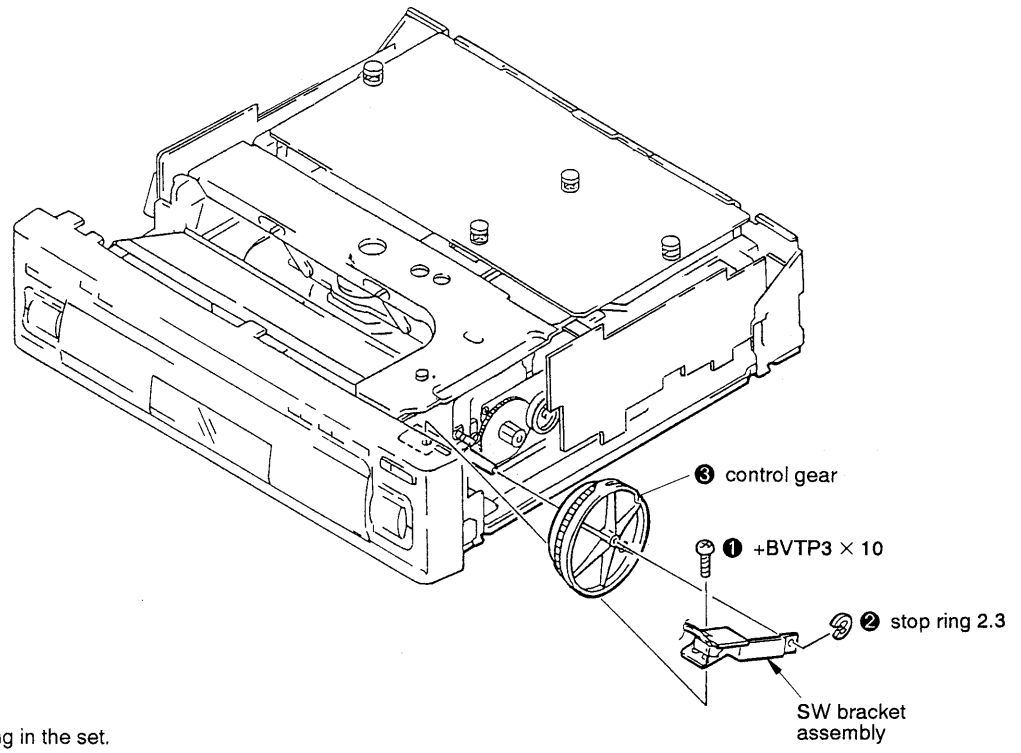


• **INSTALLATION**



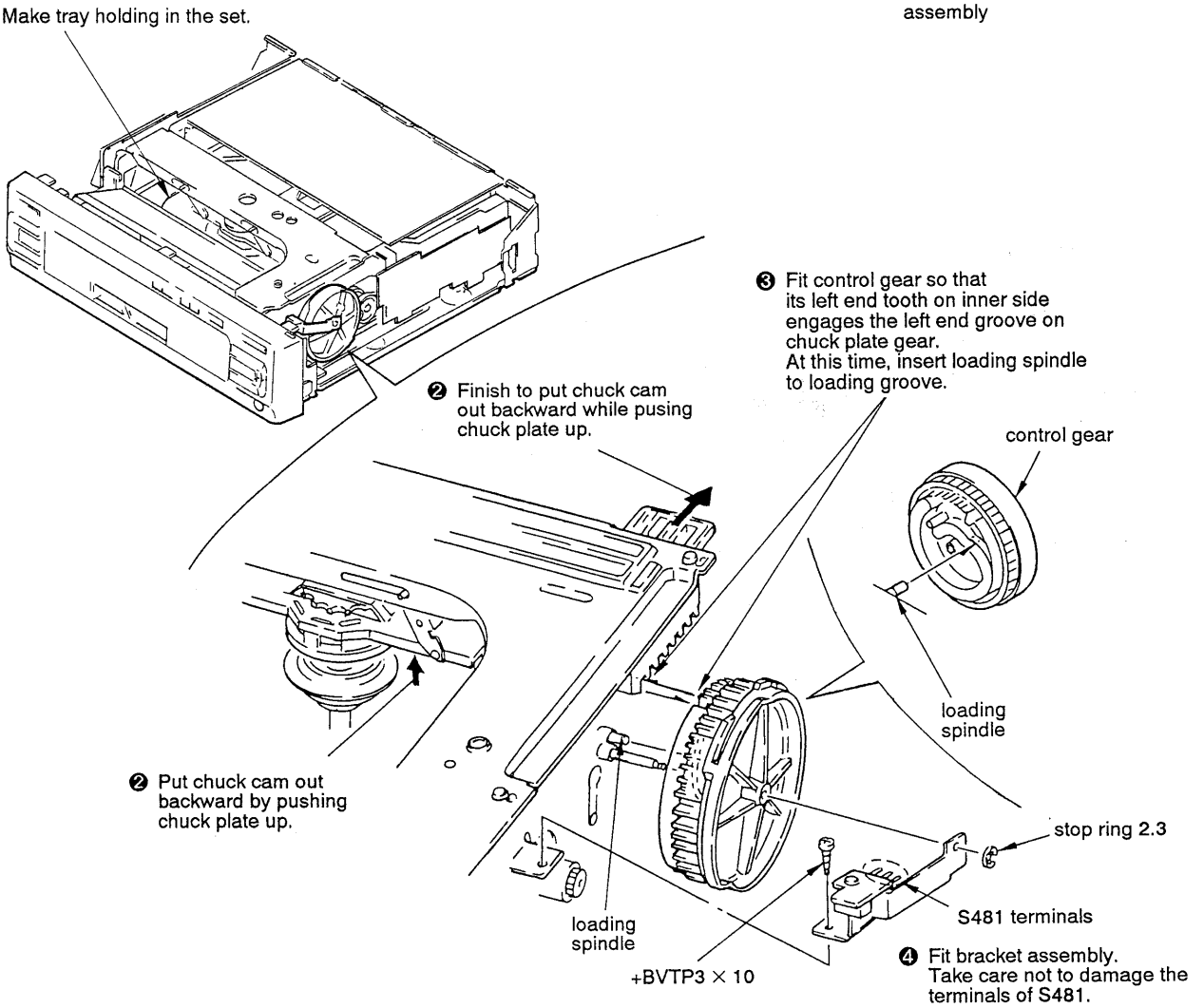
2-6. CONTROL GEAR

• **REMOVAL**

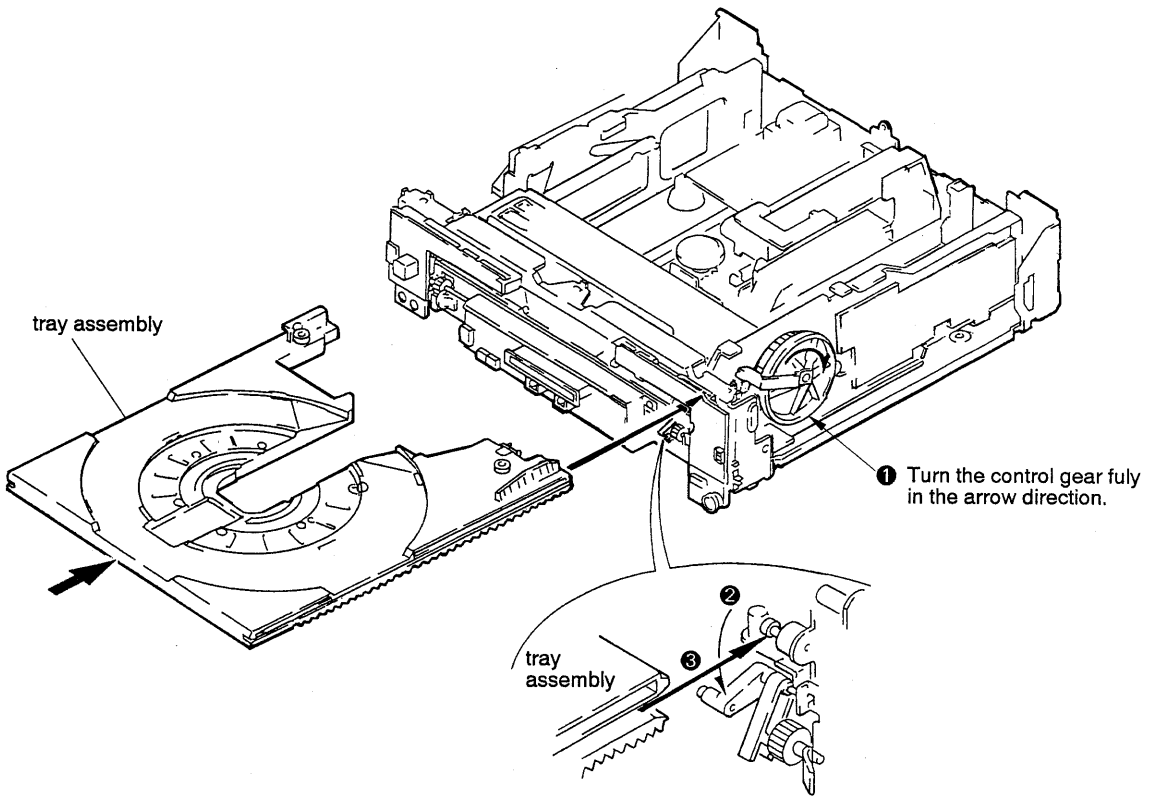


• **FITTING**

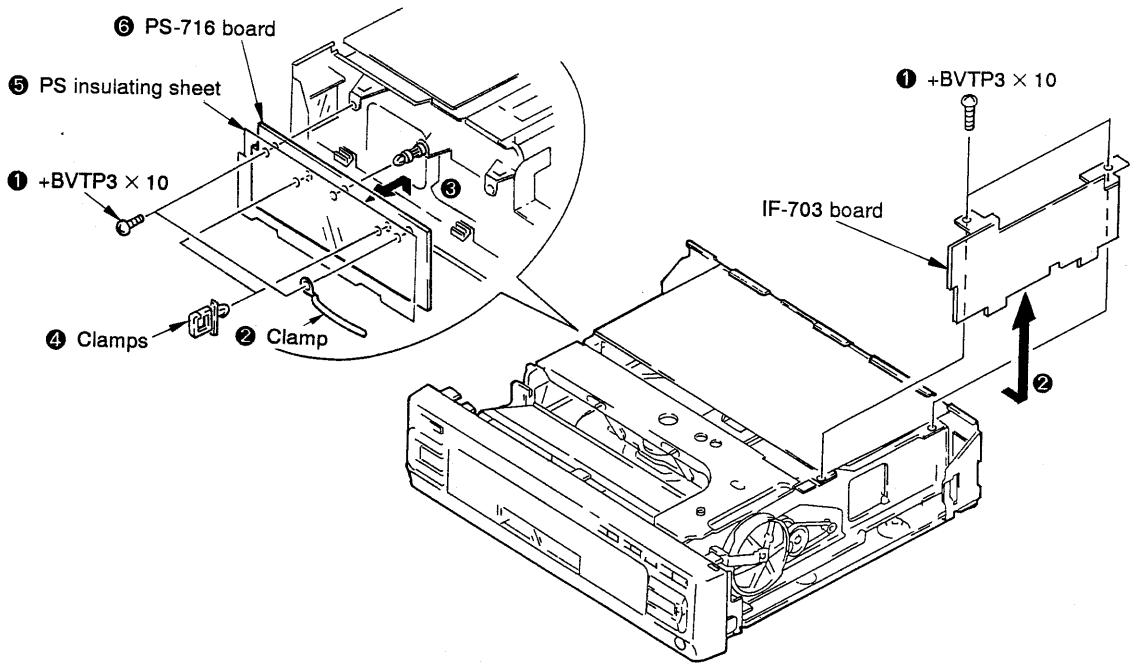
❶ Make tray holding in the set.


❸ Fit control gear so that its left end tooth on inner side engages the left end groove on chuck plate gear. At this time, insert loading spindle to loading groove.
❷ Finish to put chuck cam out backward while pusing chuck plate up.
control gear
loading spindle
❷ Put chuck cam out backward by pushing chuck plate up.
stop ring 2.3
S481 terminals
loading spindle
+BVTP3 × 10
❹ Fit bracket assembly. Take care not to damage the terminals of S481.

2-7. TRAY ASSEMBLY INSERTION

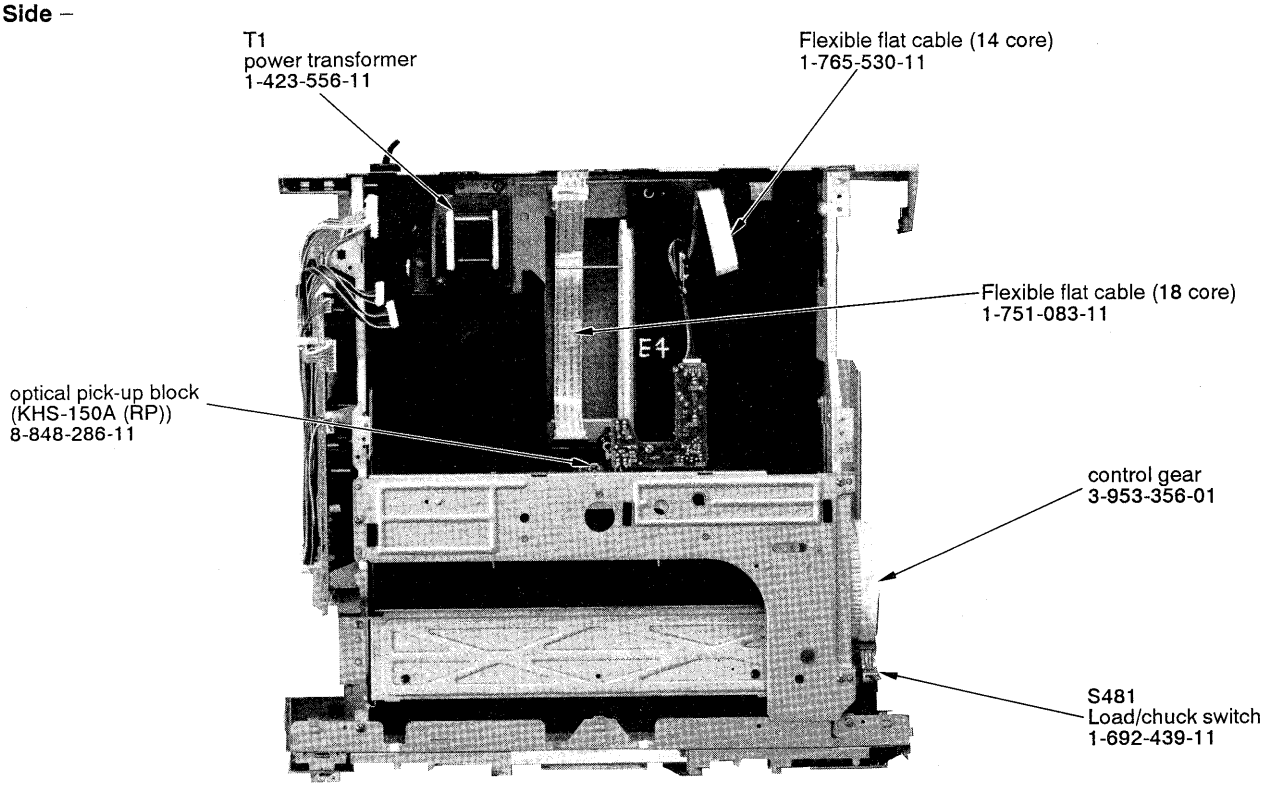


2-8. PS-716 AND IF-703 BOARDS

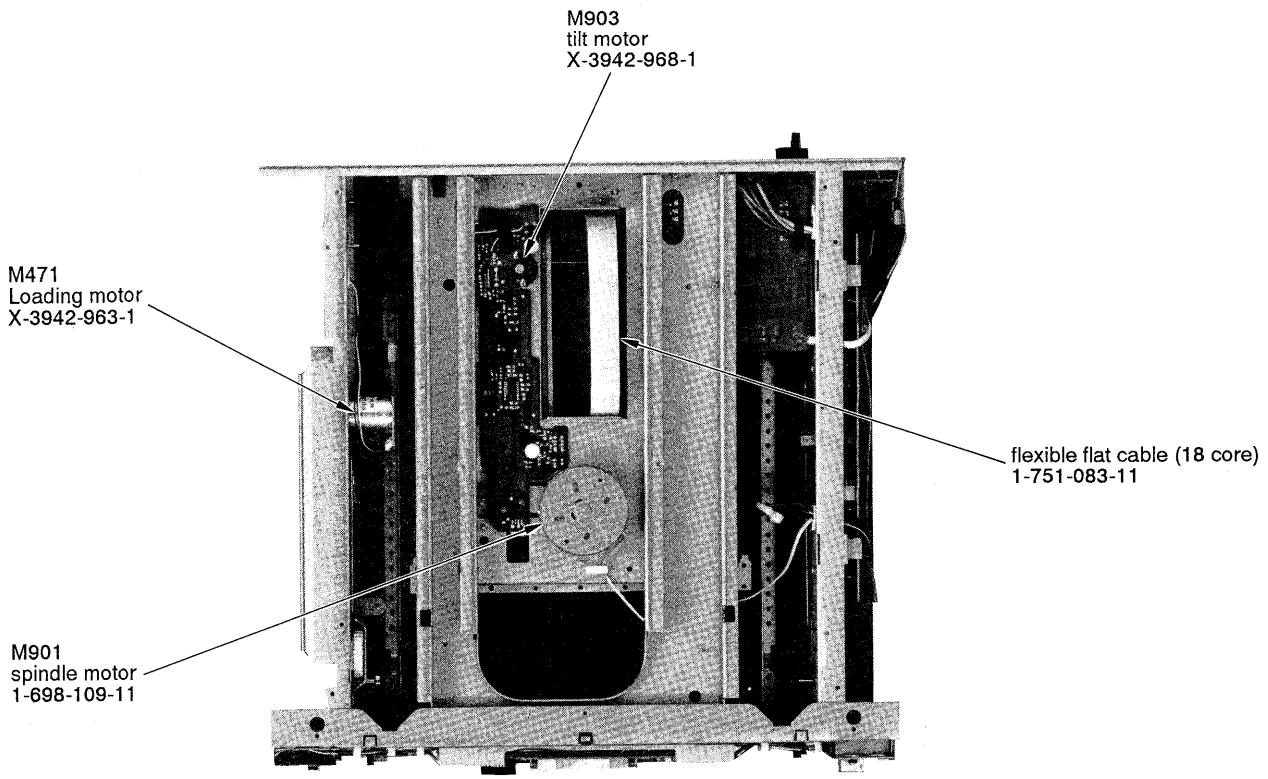


2-9. INTERNAL VIEWS

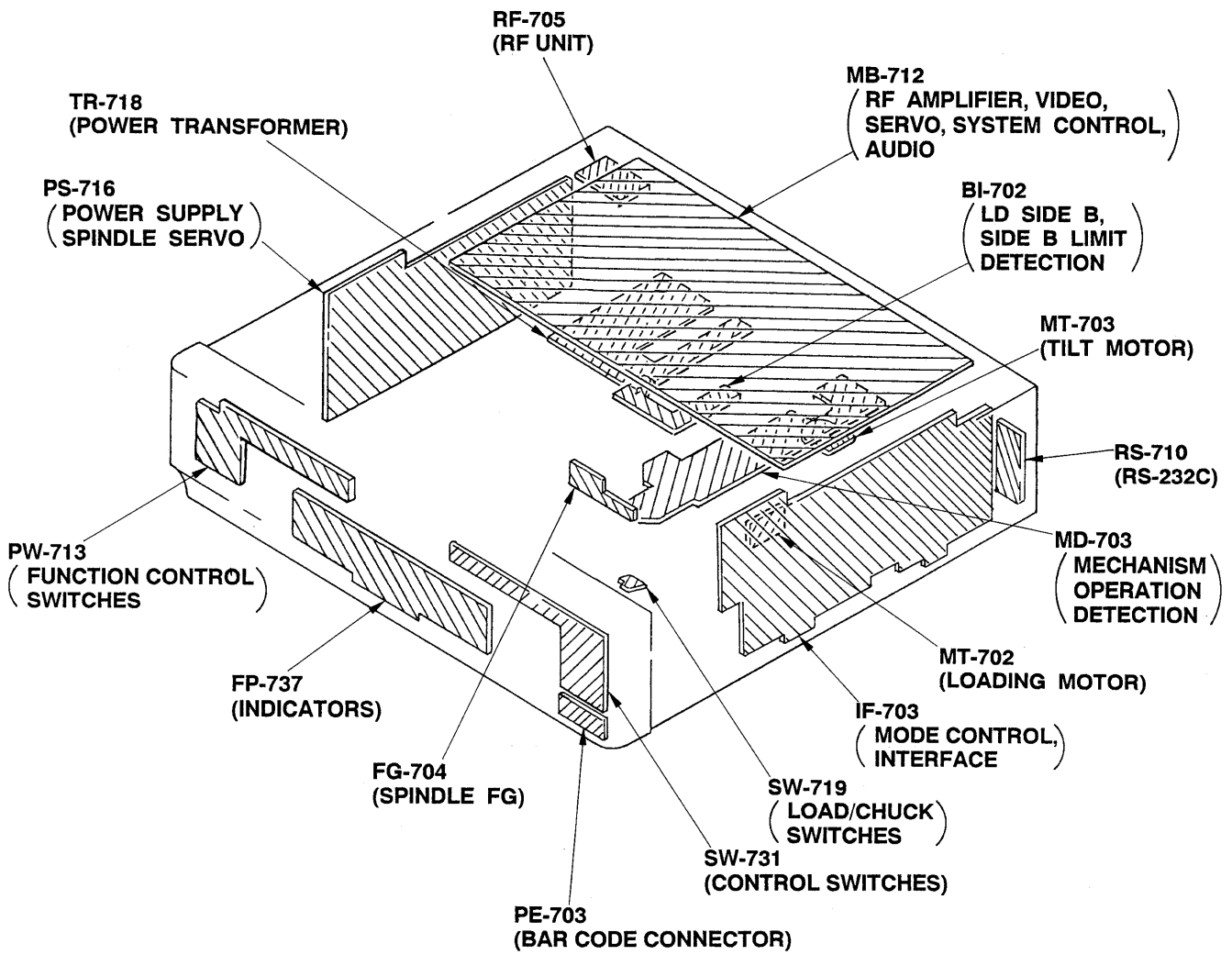
– Top Side –



– Bottom Side –

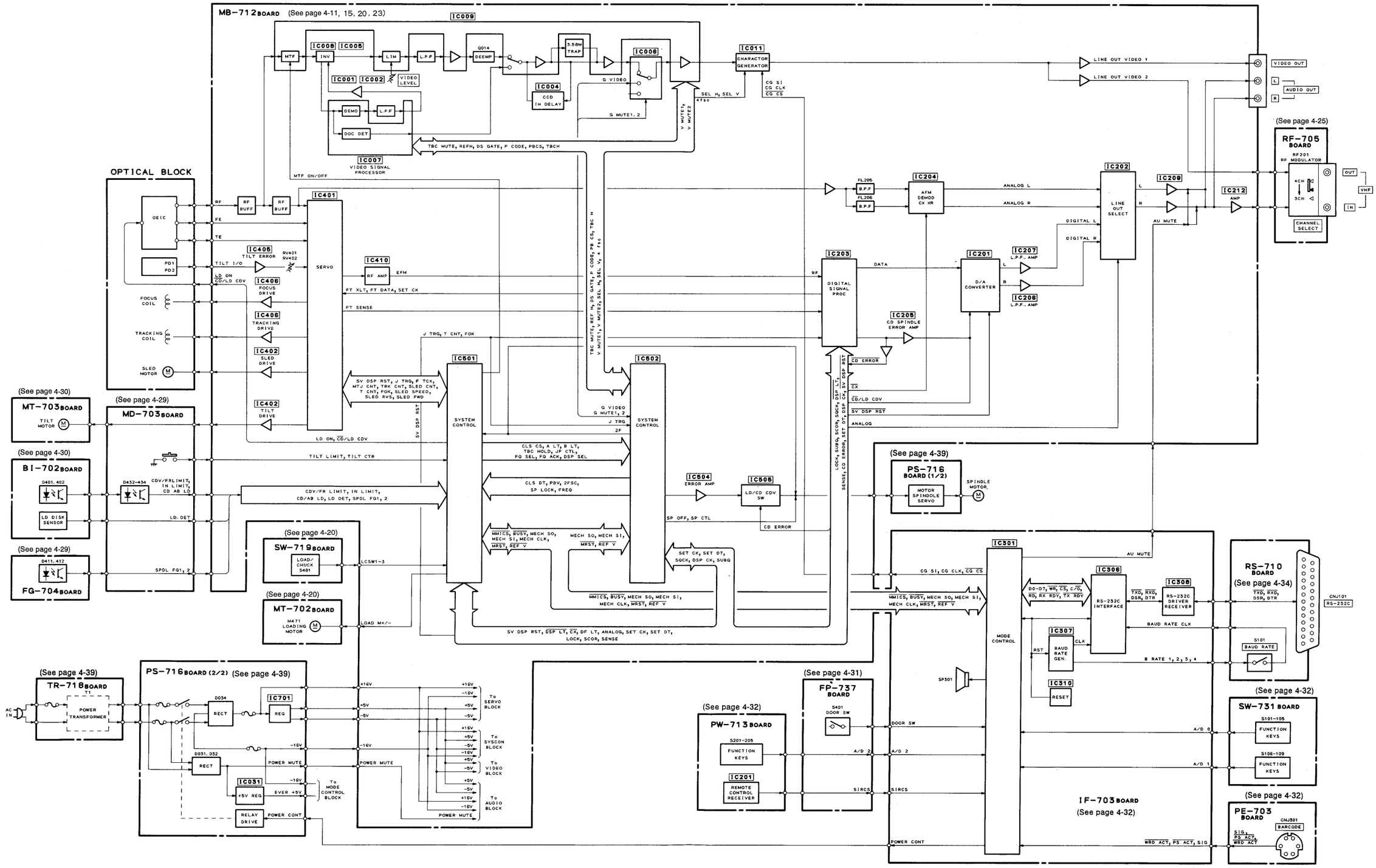


2-10. CIRCUIT BOARDS LOCATION

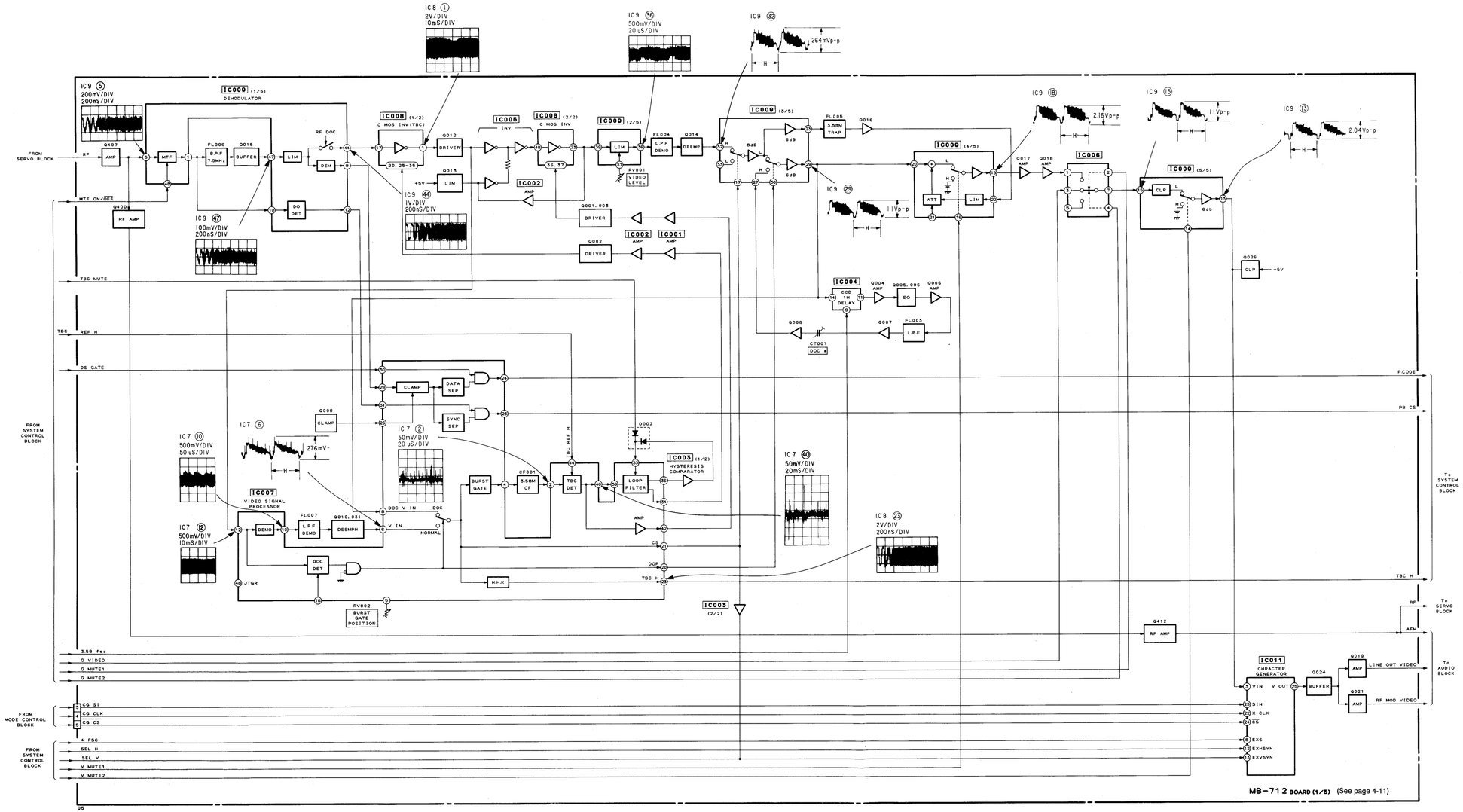


SECTION 3
BLOCK DIAGRAMS

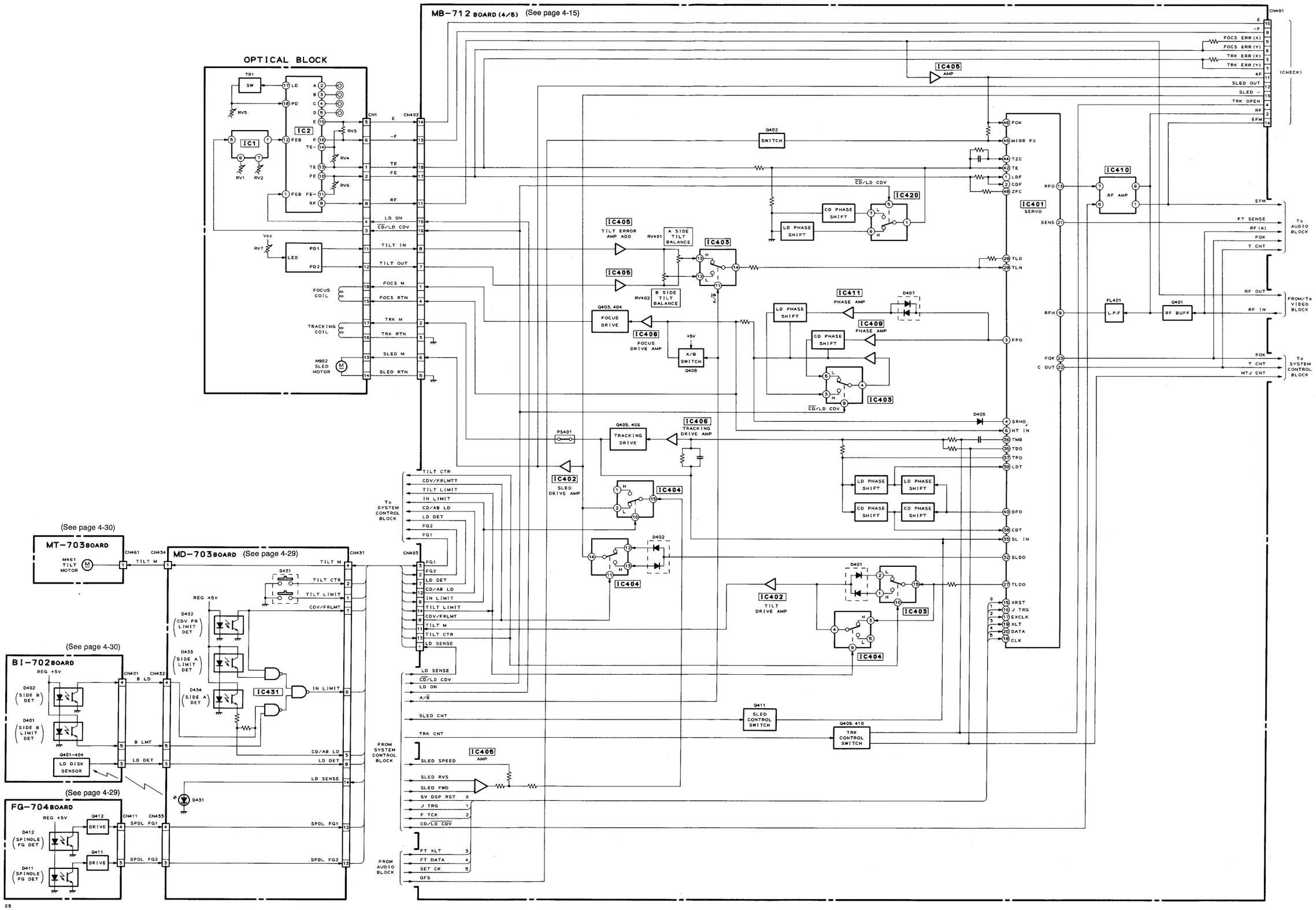
3-1. OVERALL BLOCK DIAGRAM



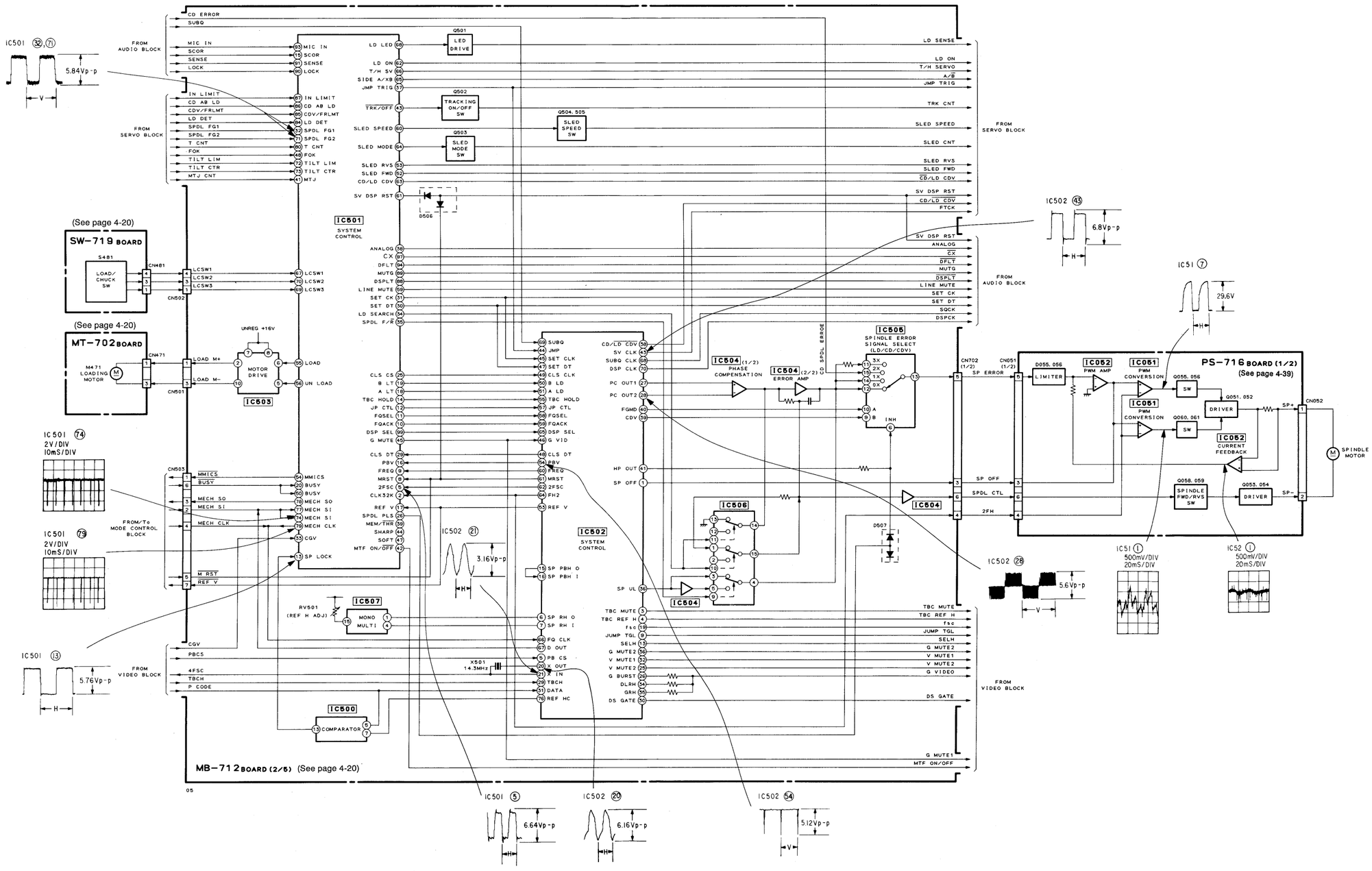
3-2. VIDEO BLOCK DIAGRAM



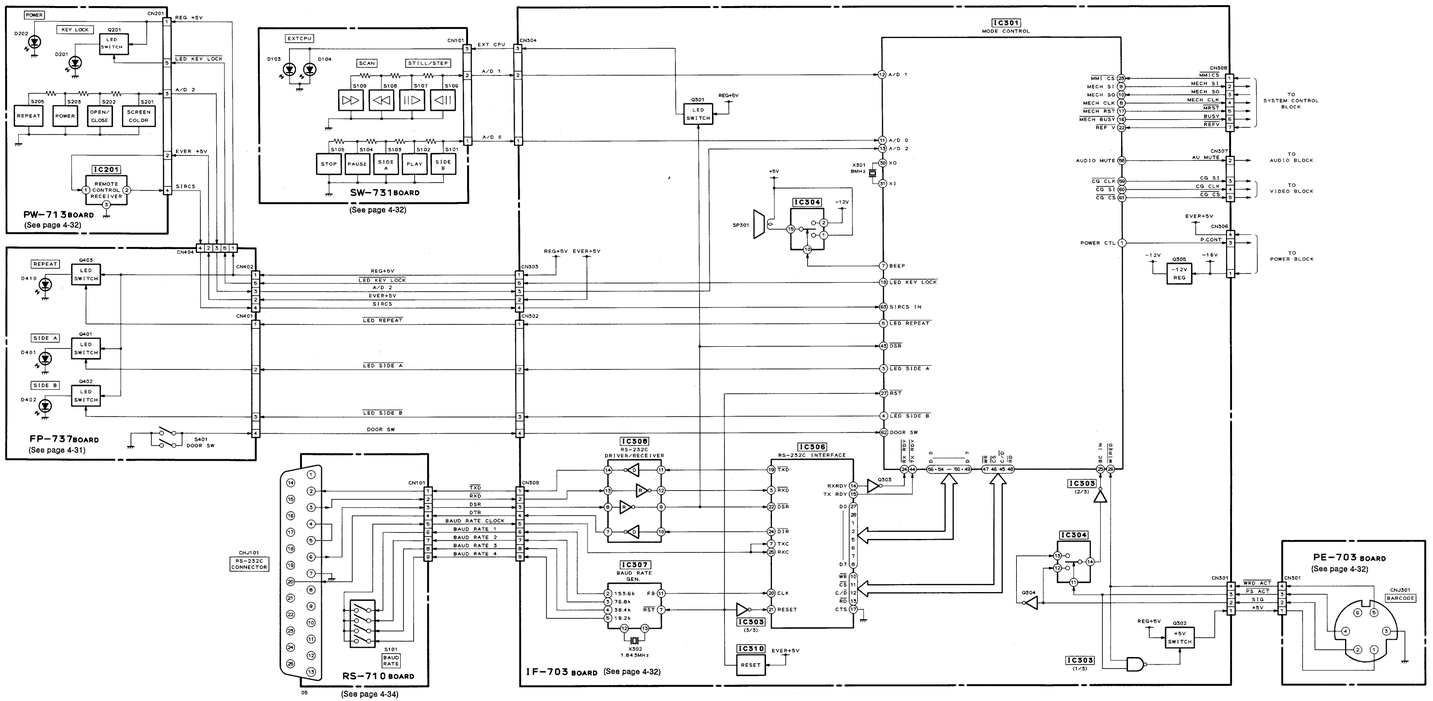
3-3. SERVO BLOCK DIAGRAM



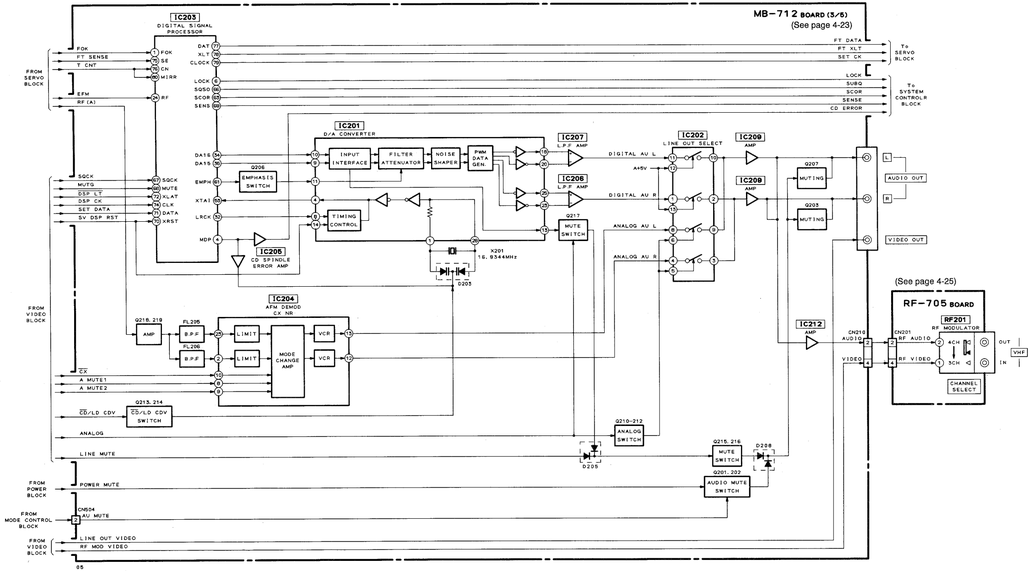
3-4. SYSTEM CONTROL BLOCK DIAGRAM



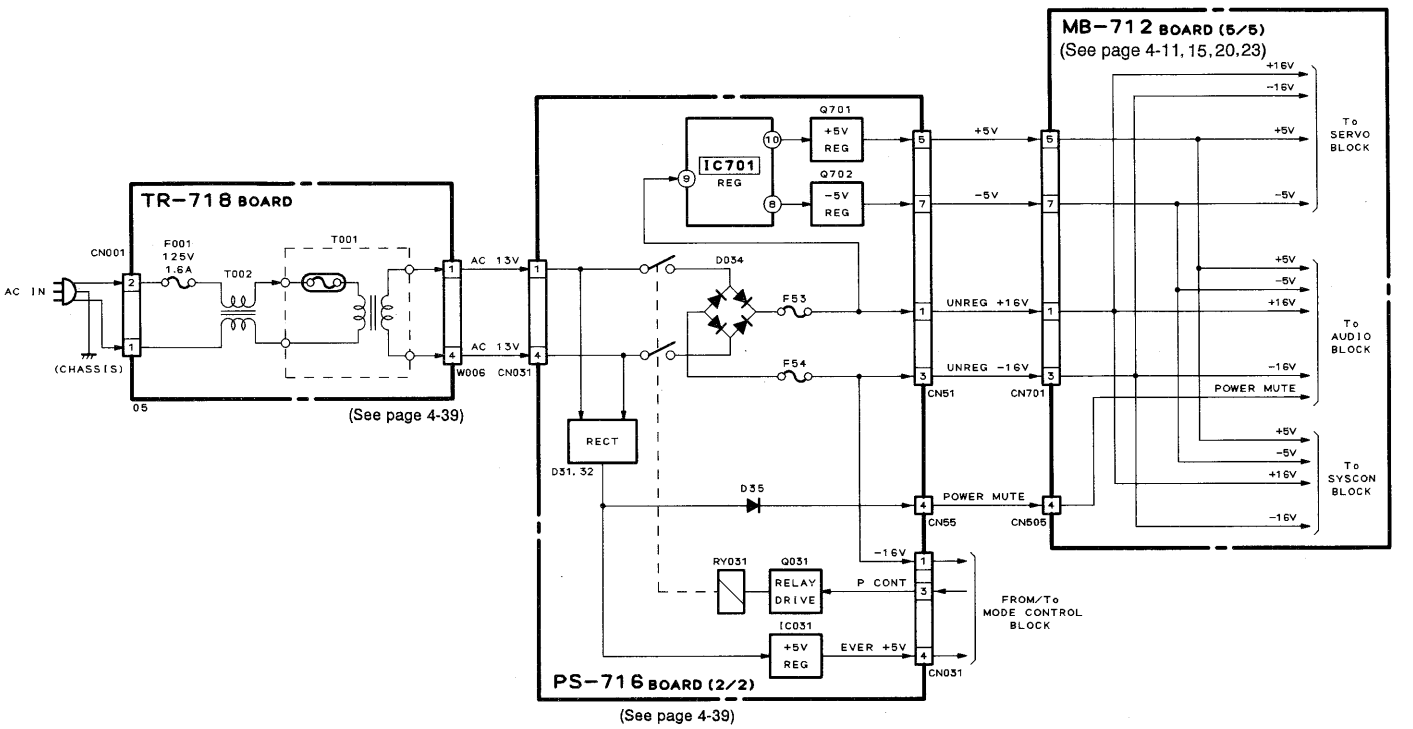
3-5. MODE CONTROL BLOCK DIAGRAM



3-6. AUDIO BLOCK DIAGRAM

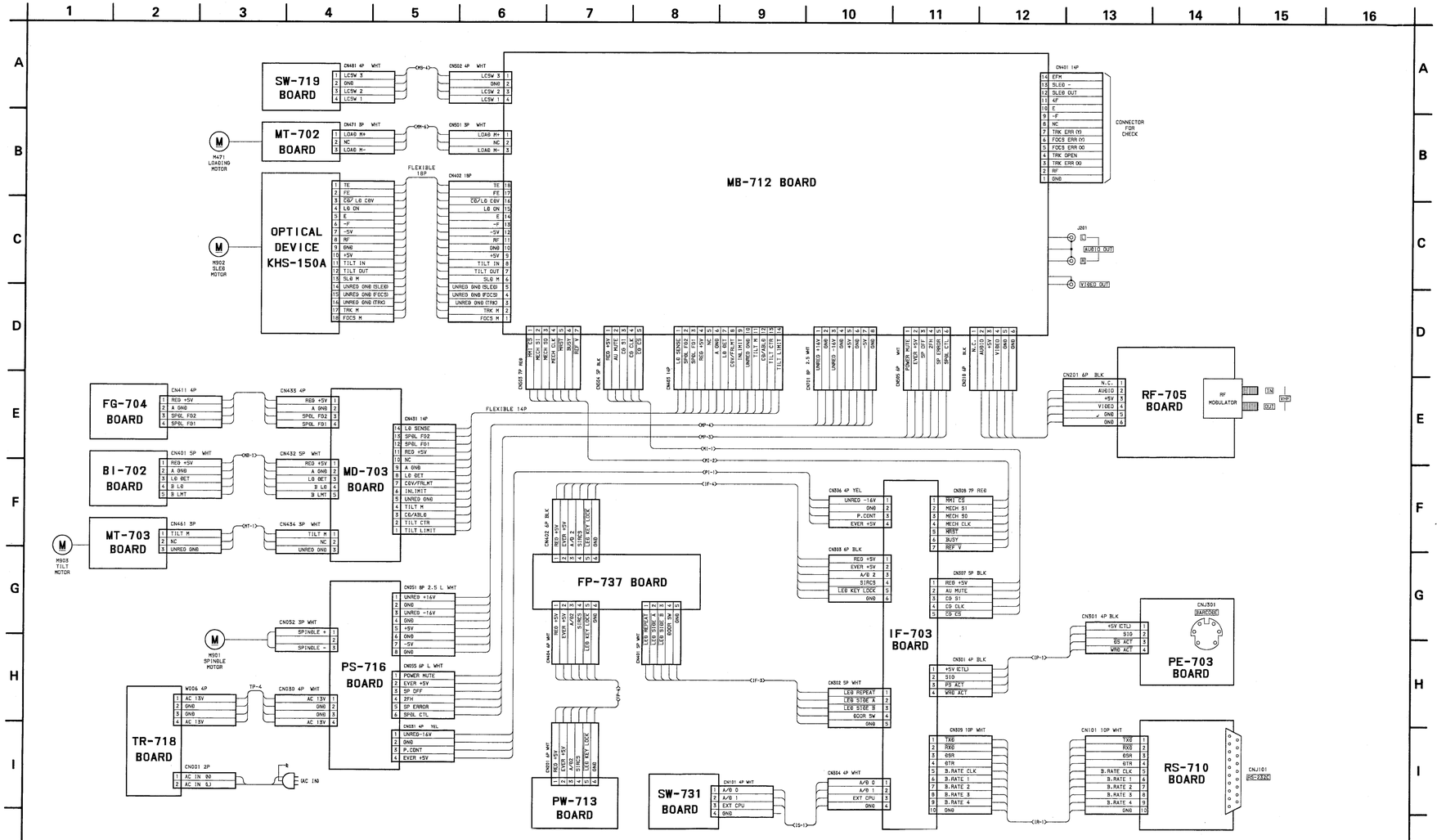


3-7. POWER SUPPLY BLOCK DIAGRAM



SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM



4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

For printed wiring boards:

- Circled numbers refer to waveforms.
- ○ : Through hole.
- ▨ : Pattern from the side which enables seeing.

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

For schematic diagram:

- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W (Chip resistors: 1/10W) unless otherwise noted.
  kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF: μμF 50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ▭ : panel designation.
- △ : internal component.
- ▭ : adjustment for repair.*
- ▬▬ : B + Line.*
- ▬ ▬ : B − Line.*
- Voltages are dc between measurement points and ground unless otherwise noted.*
- Readings are taken with a digital multimeter (DC10MΩ).*
- Voltage variations may be noted due to normal production tolerances.
- ⇨ : IN/OUT direction of B line (+, −).*
- Circled numbers refer to waveforms.*

When indicating parts by reference number, please include the board name.

Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

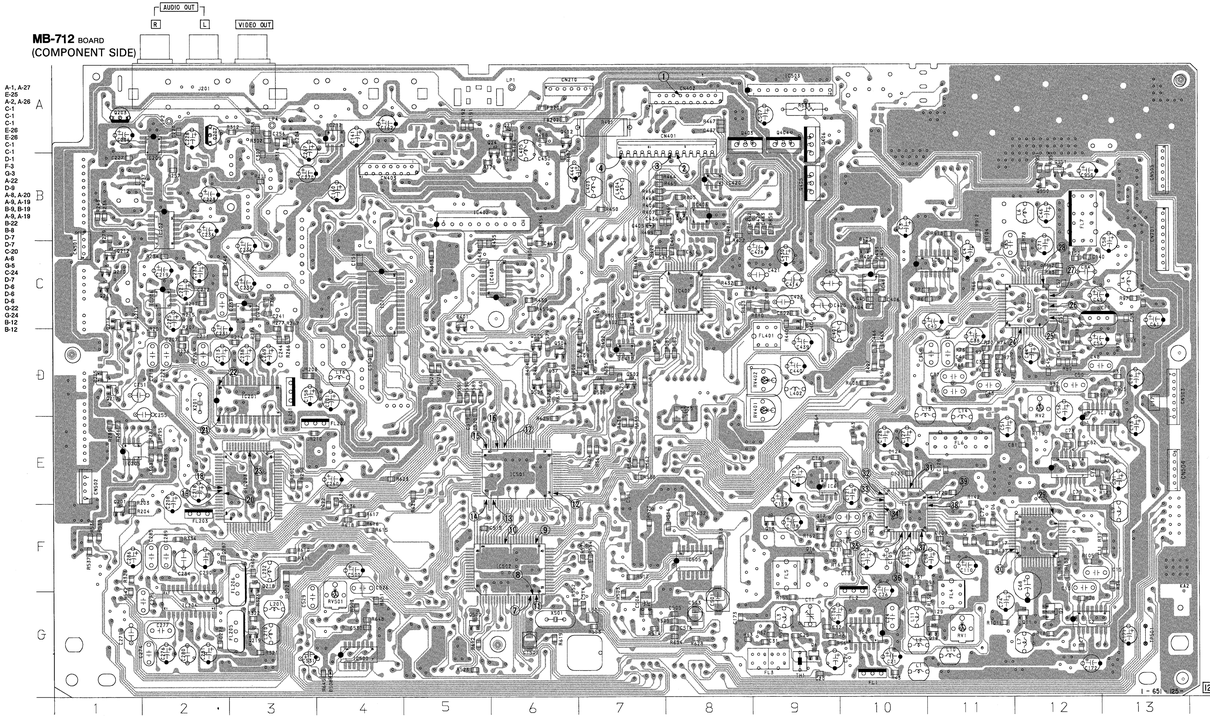
- ＊ : indicated by the color red.

FRAME

MB-712 (VIDEO, RF AMPLIFIER, SERVO, SYSTEM CONTROL, AUDIO) PRINTED WIRING BOARDS

– Ref. No.: MB-712 Board; 1,000 series –

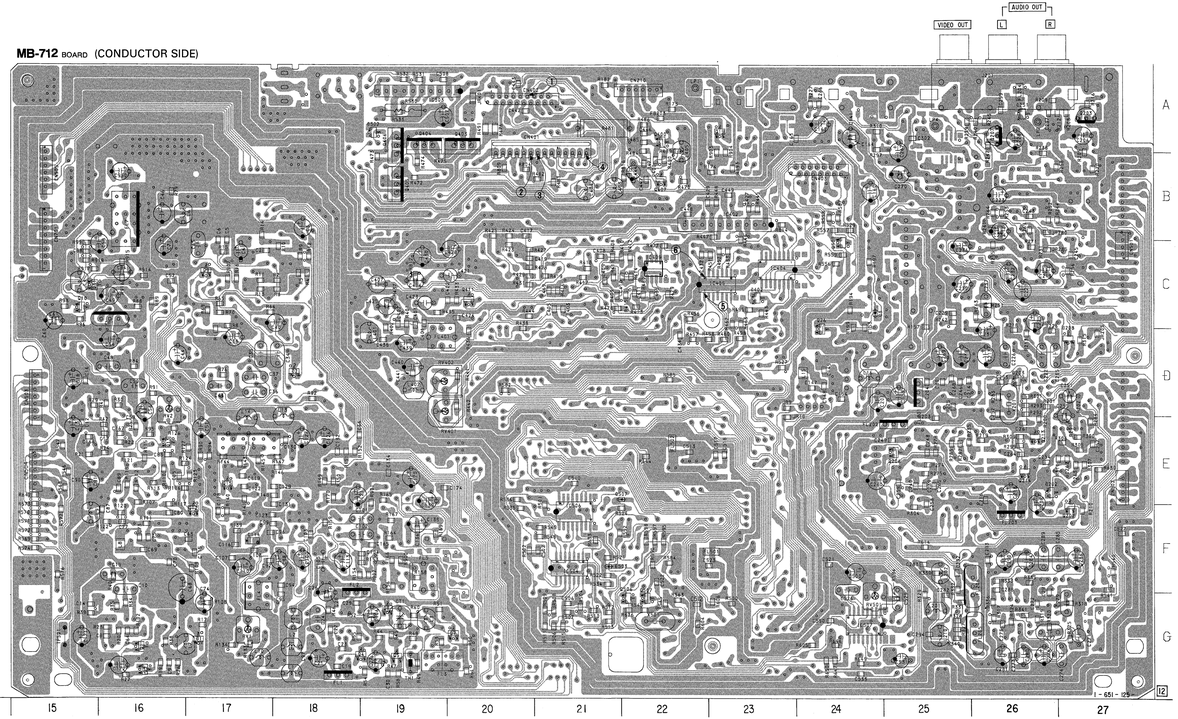
MB-712 BOARD
(COMPONENT SIDE)

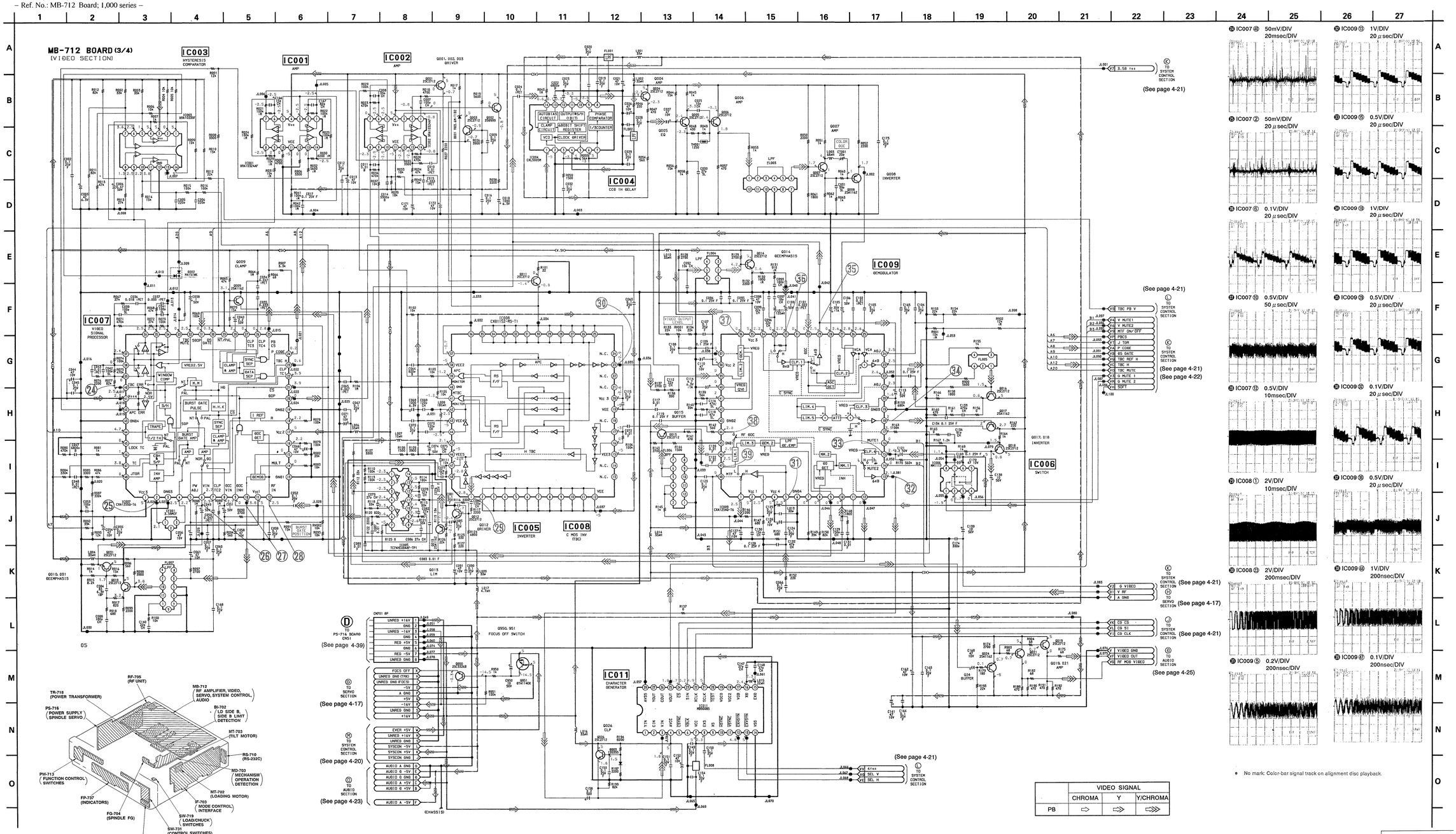


MB-712 BOARD

CN210	A-6, A-22	
CN401	A-6, A-20	
CN402	A-6, A-20	
CN403	B-4, B-24	
CN501	C-27, C-1	
CN502	E-27, E-1	
CN503	D-13, D-15	
CN504	C-15, E-13	
CN505	B-13, B-15	
CN701	B-13, B-15	
D001	G-17	
D002	D-19	
D003	C-24	
D202	E-28	
D203	D-28	
D204	A-3	
D205	D-1	
D208	D-27	
D251	A-26	
D401	C-5	
D402	C-33	
D403	E-10	
D405	B-7	
D502	A-19	
D503	F-21	
D506	D-7	
D507	E-21	
D508	G-4	
IC001	E-13	
IC002	E-10	
IC003	C-11	
IC004	G-10	
IC005	E-12	
IC006	E-9	
IC007	C-12	
IC008	F-12	
IC009	F-10	
IC011	C-4	
IC201	D-3	
IC202	B-2	
IC203	E-3	
IC204	G-2	
IC205	E-1	
IC206	C-2	
IC207	C-3	
IC209	A-2	
IC212	C-8	
IC401	C-8	
IC402	B-5, B-23	
IC403	C-6	
IC404	C-23	
IC405	C-23	
IC406	B-8	
IC409	C-22	
IC410	D-7	
IC411	C-20	
IC420	B-8	
IC500	G-4	
IC501	E-6	
IC502	F-6	
IC503	A-6, A-19	
IC504	F-21	
IC505	F-6	
IC506	F-21	
IC507	G-24	
Q001	G-16	
Q002	G-12	
Q003	G-18	
Q004	G-19	
Q005	G-19	
Q006	G-9	
Q007	G-20	
Q008	G-19	
Q009	C-17	
Q010	C-15	
Q011	G-12	
Q012	F-17	
Q013	E-16	
Q014	G-11	
Q015	E-17	
Q016	F-9	
Q017	F-9	
Q018	F-9	
Q019	A-23	
Q021	A-6	
Q024	B-6	
Q026	C-24	
Q031	C-15	
Q201	F-1	
Q202	F-27	
Q203	A-1, A-27	
Q206	E-25	
Q207	A-2, A-28	
Q210	C-1	
Q211	C-1	
Q212	C-1	
Q213	E-26	
Q214	E-26	
Q215	C-1	
Q216	C-1	
Q217	D-1	
Q218	F-3	
Q219	G-3	
Q400	A-22	
Q401	D-9	
Q403	A-6, A-20	
Q404	A-9, A-19	
Q405	B-9, B-19	
Q406	A-9, A-19	
Q407	B-22	
Q408	B-8	
Q409	D-7	
Q410	D-7	
Q411	C-20	
Q412	A-6	
Q500	G-6	
Q501	C-24	
Q502	D-7	
Q503	D-6	
Q504	D-6	
Q505	D-6	
Q506	C-22	
Q507	G-24	
Q950	B-12	
Q951	B-12	

MB-712 BOARD (CONDUCTOR SIDE)





● No mark: Color-bar signal track on alignment disc playback.

MB-712 (RF AMPLIFIER, SERVO) SCHEMATIC DIAGRAM • See pages 4-6 to 4-10 for MB-712 printed wiring board diagram.

– Ref. No.: MB-712 Board; 1,000 series –

❶ CN402⑪ 0.2V/DIV 100nsec/DIV

❷ CN401⑥ 0.1V/DIV 100msec/DIV

❸ CN401⑦ 0.1V/DIV 10msec/DIV

❹ CN401⑭ 0.5V/DIV 10 μsec/DIV

❺ IC405① 0.1V/DIV 1msec/DIV

❻ IC405⑭ 0.1V/DIV 500 μsec/DIV

MB-712 BOARD (1/4)

(SERVO SECTION)

IC420 TRACKING ERROR AMP

IC406 TRACKING/ FOCUS DRIVE AMP

IC405 TILT ERROR AMP ADD

IC401 SERVO CXA1632Q

IC403 SWITCH

IC404 SWITCH

IC402 SLED DRIVE AMP

IC411 PHASE AMP

IC409 PHASE AMP

IC410 RF AMP

Q405, 410 TRK CONTROL SWITCH

Q411 SLED CONTROL SWITCH

Q403, 404 FOCUS DRIVE

Q405, 406 TRACKING DRIVE

Q407, 412 RF AMP

RF BUFFER

CN401 14P

CN402 18P

CONNECTOR FOR CHECKS

TO VIDEO SECTION (See page 4-12)

TO VIDEO SECTION (See page 4-14)

TO AUDIO SECTION (See page 4-23)

TO VIDEO SECTION (See page 4-12)

TO AUDIO SECTION (See page 4-23)

TO SYSTEM CONTROL SECTION (See page 4-21)

MB-701 BOARD CN413 (See page 4-30)

TO SYSTEM CONTROL SECTION (See page 4-21)

OPTICAL DEVICE KHS-150A

TRACKING COIL

FOCUS COIL

SLED

No mark: Color-bar signal track on alignment disc playback.

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
PB	⇨	⇨	⇨	⇨

SPINDLE PHASE SERVO	⋙
SPINDLE SERVO (SPEED AND PHASE)	⋙
TRACKING SERVO LD/CD/CDV	⋙
SLIDE SERVO LD/CD	⋗
FOCUS SERVO LD/CD	⋙
SKEW SERVO LD TILT	⋗

IC401 CXA1632Q

⑦ IC502 ㉘ 2V/DIV 50nsec/DIV

⑱ IC501 ㉓ 2V/DIV 10msec/DIV

⑧ IC502 ㉑ 1V/DIV 50nsec/DIV

⑲ IC501 ㉔ 2V/DIV 10msec/DIV

⑨ IC502 ㉒ 2V/DIV 1 μsec/DIV

⑩ IC502 ㉔ 2V/DIV 10msec/DIV

⑪ IC502 ㉖ 2V/DIV 10msec/DIV

⑫ IC501 ㉒ 2V/DIV

⑬ IC501 ㉑ 1msec/DIV

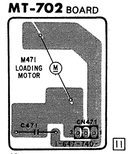
⑭ IC501 ⑤ 2V/DIV 100nsec/DIV

⑮ IC501 ② 2V/DIV 10 μsec/DIV

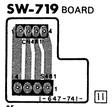
• No mark: Color-bar signal track on alignment disc playback.

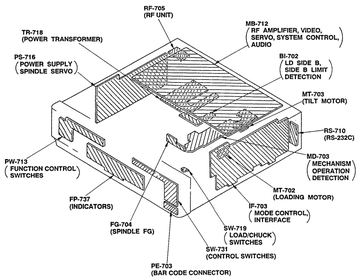
SPINDLE SERVO (SPEED AND PHASE)

MT-702 BOARD

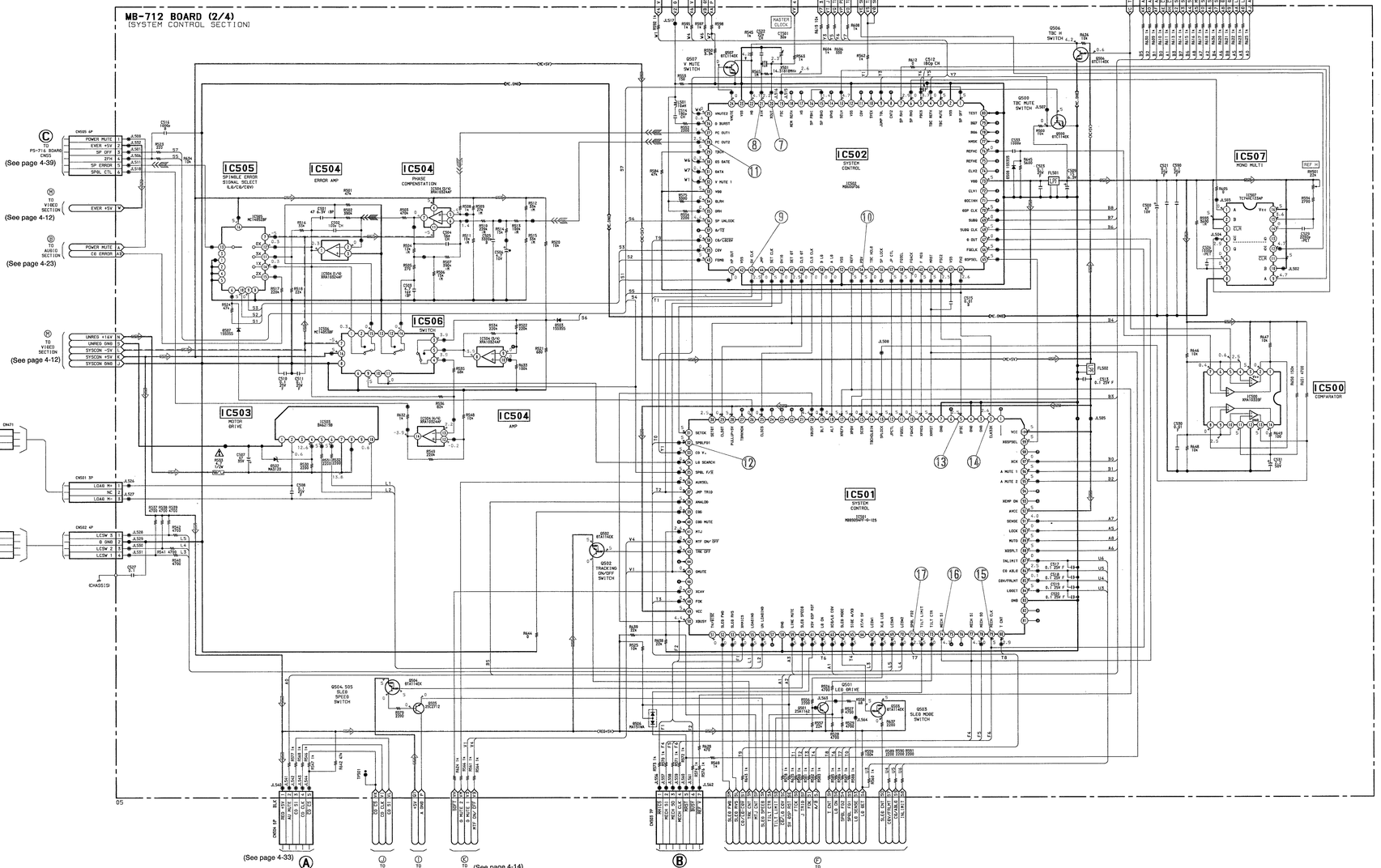


SW-719 BOARD





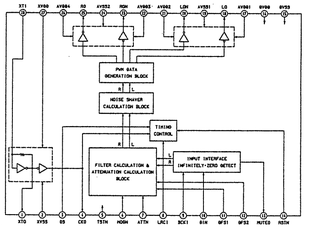
MB-712 BOARD (2/4)
(SYSTEM CONTROL SECTION)



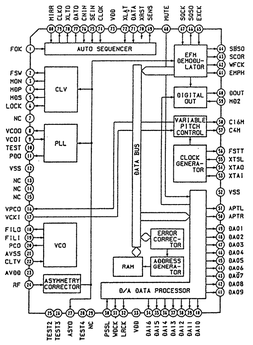
MB-712 (AUDIO), RF-705 (RF UNIT) PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM • See pages 4-6 to 4-10 for MB-712 printed wiring board.

– Ref. No.: MB-712 Board; 1,000 series, RF-705 Board; 7,000 series –

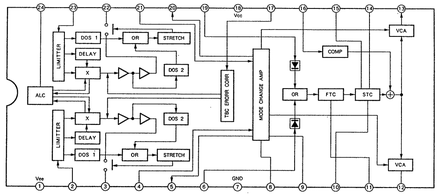
IC201 CXD8451M

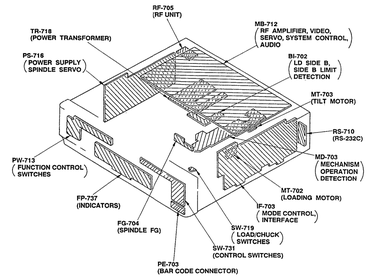


IC203 CXD2500BQ



IC204 CA0002AM

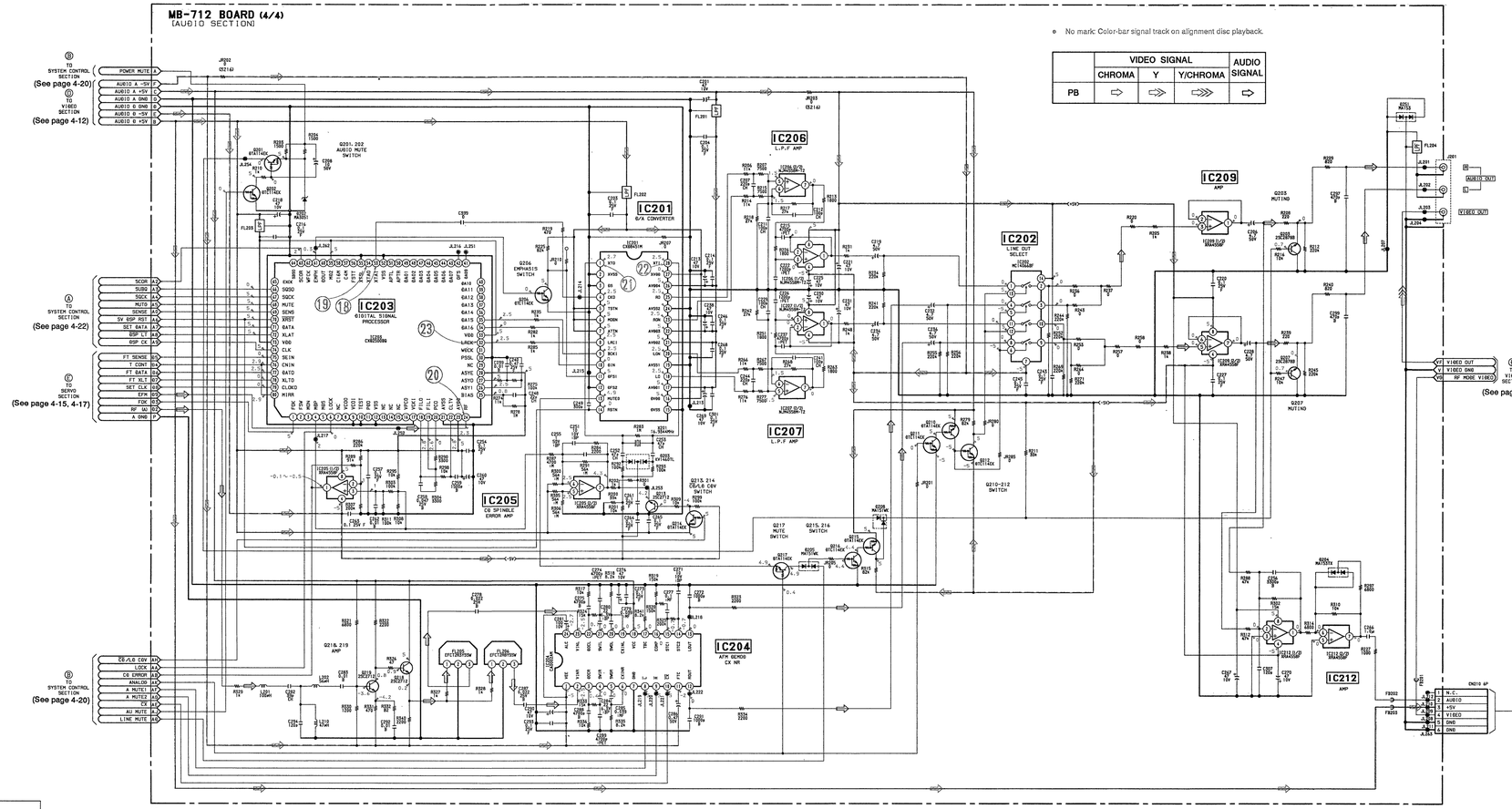




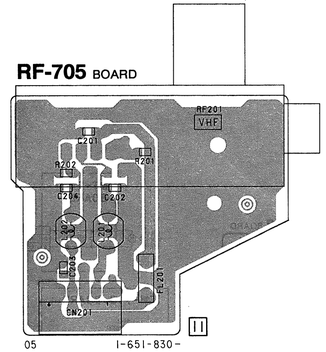
MB-712 BOARD (4/4)
(AUDIO SECTION)

• No mark: Color-bar signal track on alignment disc playback.

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
PB	⇨	⇨	⇨	⇨

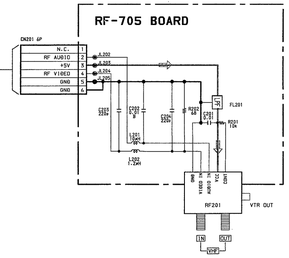

IC206 L.P.F AMP
IC201 D/A CONVERTER
IC202 LINE OUT SELECT
IC209 AMP
IC203 DIGITAL SIGNAL PROCESSOR
IC207 L.P.F AMP
IC205 CD SPINDLE ERROR AMP
IC204 AFA SERVO CX NR
IC212 AMP
Q201, 202 AUDIO MUTE SWITCH
Q203 MUTING
Q206 DMP4501S SWITCH
Q210-212 SWITCH
Q215, 216 D/S & D/V SWITCH
Q217 MUTE SWITCH
Q218, 219 AMP
Q257 MUTING
TO SYSTEM CONTROL SECTION (See page 4-20)
TO VIDEO SECTION (See page 4-12)
TO SYSTEM CONTROL SECTION (See page 4-22)
TO SERVO SECTION (See page 4-15, 4-17)
TO SYSTEM CONTROL SECTION (See page 4-20)
TO VIDEO SECTION (See page 4-14)

RF-705 BOARD

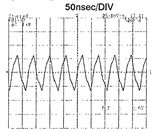


05 1-651-830- 11

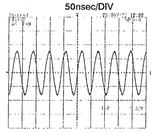
RF-705 BOARD



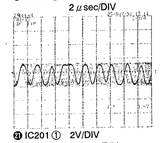
IB IC203 ⑤ 1V/DIV 50nsec/DIV



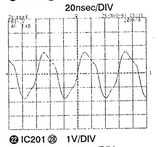
IB IC203 ⑭ 1V/DIV 50nsec/DIV



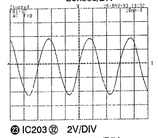
IB IC203 ㉔ 1V/DIV 2 μsec/DIV



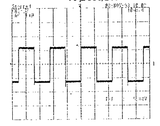
IB IC201 ① 2V/DIV 20nsec/DIV



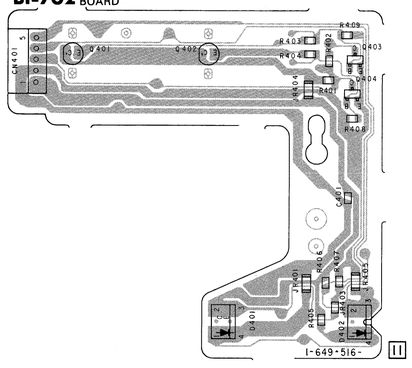
IB IC201 ㉒ 1V/DIV 20nsec/DIV



IB IC203 ㉜ 2V/DIV 10 μsec/DIV



BI-702 BOARD


CN401
Q401
Q402
Q403
Q404
Q405
Q406
Q407
Q408
Q409
Q410
Q411
Q412
D401
D402
D403
D404
D405
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D407
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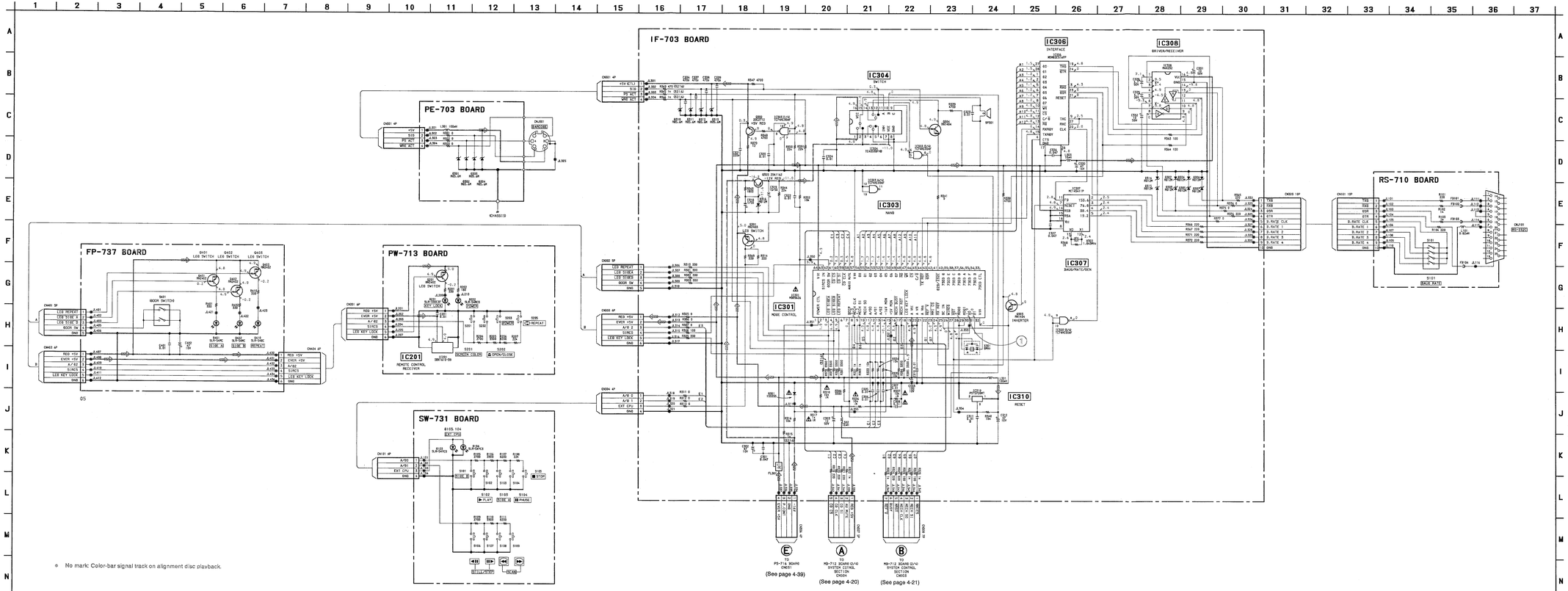
D440

IF-703 (MODE CONTROL, INTERFACE), FP-737 (INDICATORS), PW-713 (FUNCTION CONTROL SWITCHES), SW-731 (CONTROL SWITCHES) PE-703 (BAR CODE CONNECTOR), RS-710 (RS-232C) SCHEMATIC DIAGRAMS

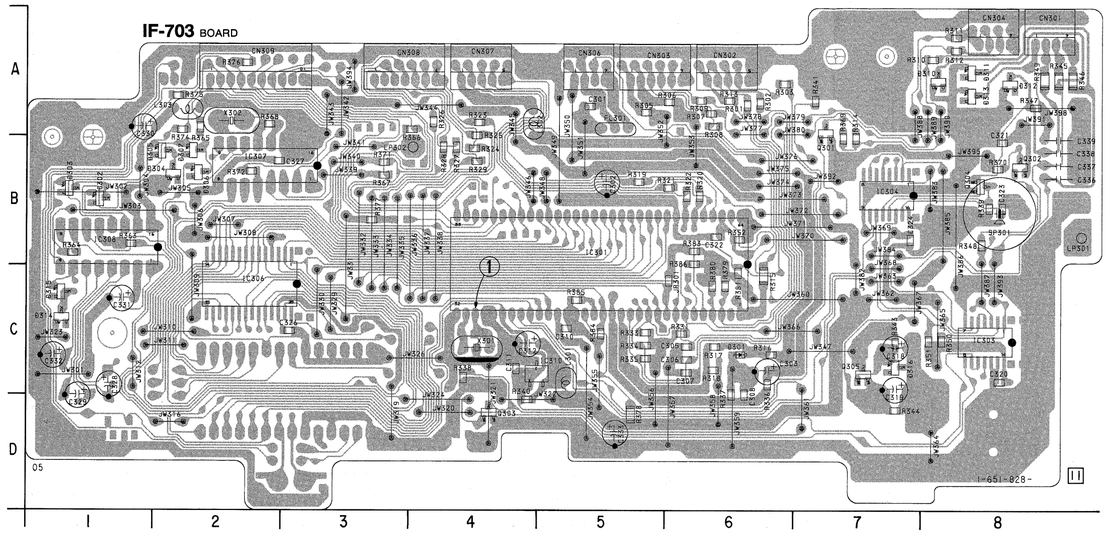
– Ref. No.: IF-703, FP-737, PW-713 and SW-731 Boards; 3,000 series, PE-703 and RS-710 Boards; 7,000 series –



IF-703 (MODE CONTROL, INTERFACE), FP-737 (INDICATORS), PW-713 (FUNCTION CONTROL SWITCHES), SW-731 (CONTROL SWITCHES) PE-703 (BAR CODE CONNECTOR), RS-710 (RS-232C) PRINTED WIRING BOARDS

– Ref. No.: IF-703, FP-737, PW-713 and SW-731 Boards; 3,000 series, PE-703 and RS-710 Boards; 7,000 series –

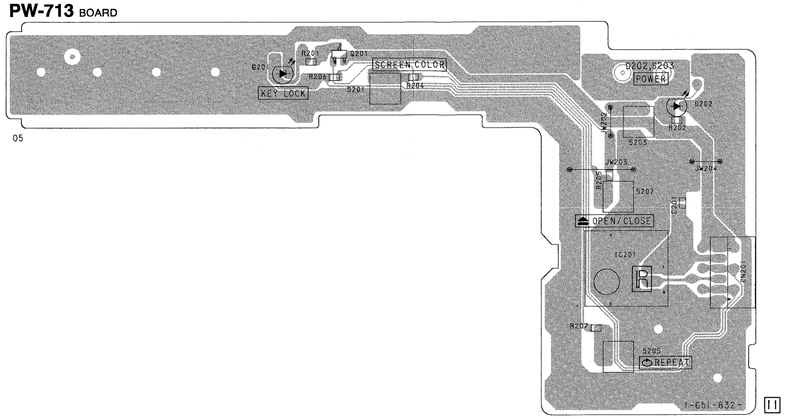
IF-703 BOARD



IF-703 BOARD

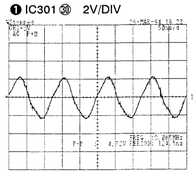
CN301	A-8
CN302	A-5
CN303	A-5
CN304	A-8
CN306	A-5
CN307	A-4
CN308	A-3
CN309	A-2
D301	C-6
D302	B-1
D303	B-1
D304	B-2
D305	B-2
D306	B-2
D307	B-2
D310	A-8
D311	A-8
D312	A-8
D313	A-8
D314	C-1
D315	C-1
D316	C-7
IC301	C-5
IC303	C-8
IC304	B-7
IC306	B-2
IC307	B-2
IC308	B-1
IC310	D-4
Q301	B-7
Q302	B-8
Q303	D-4
Q304	B-8
Q305	C-7

PW-713 BOARD



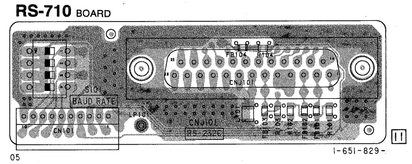
IF-703 BOARD

❶ IC301 ⑳ 2V/DIV

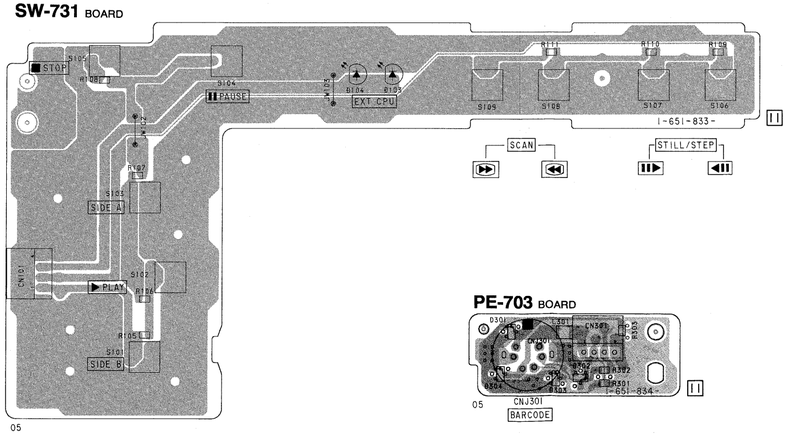


8MHz

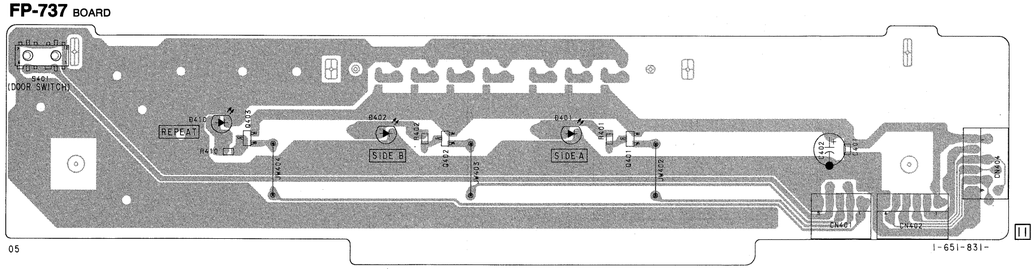
RS-710 BOARD



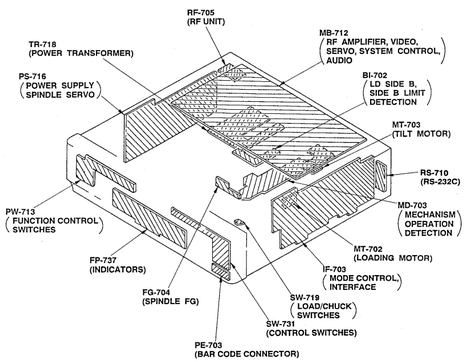
SW-731 BOARD



FP-737 BOARD



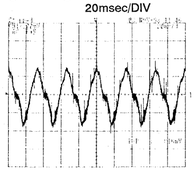
PE-703 BOARD



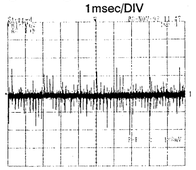
PS-716 (POWER SUPPLY, SPINDLE SERVO), TR-718 (POWER TRANSFORMER) SCHEMATIC DIAGRAMS

– Ref. No.: TR-718 Board; 5,000 series, PS-716 Board; 6,000 series –

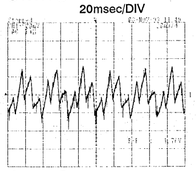
❶ CN055 ⑤ 0.2V/DIV 20msec/DIV



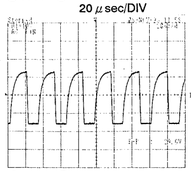
❷ CN055 ⑥ 50mV/DIV 1msec/DIV



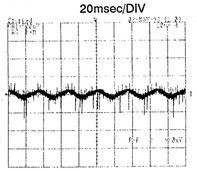
❸ IC051 ① 0.5V/DIV 20msec/DIV

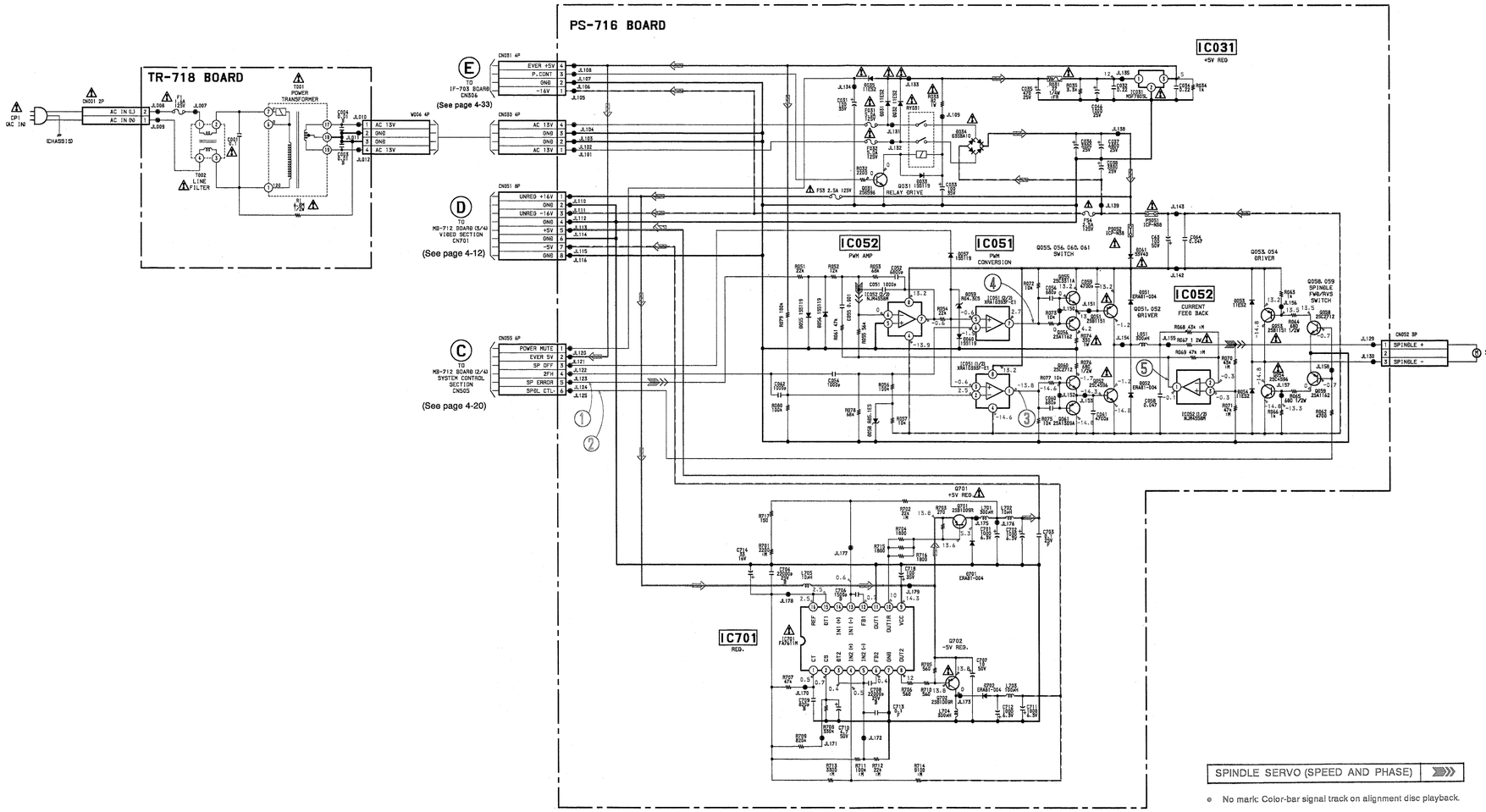


❹ IC051 ⑦ 10V/DIV 20 μsec/DIV



❺ IC052 ① 0.5V/DIV 20msec/DIV



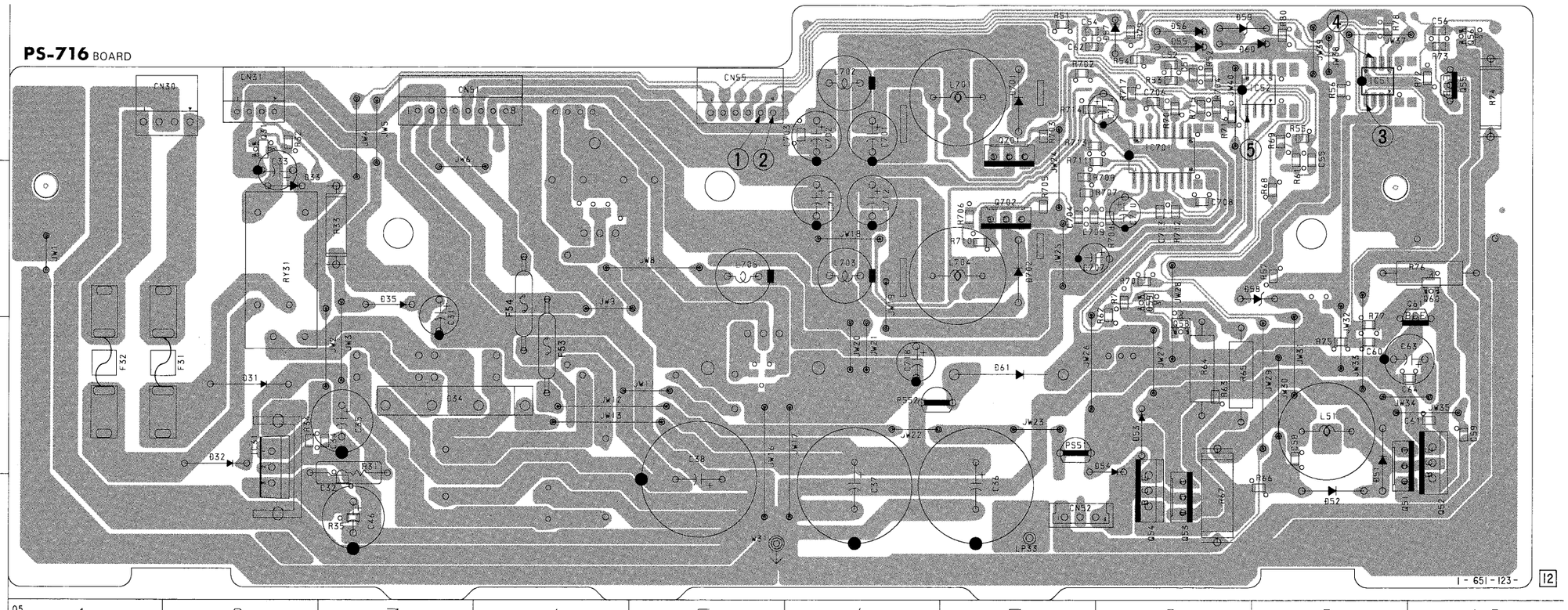


SPINDLE SERVO (SPEED AND PHASE)

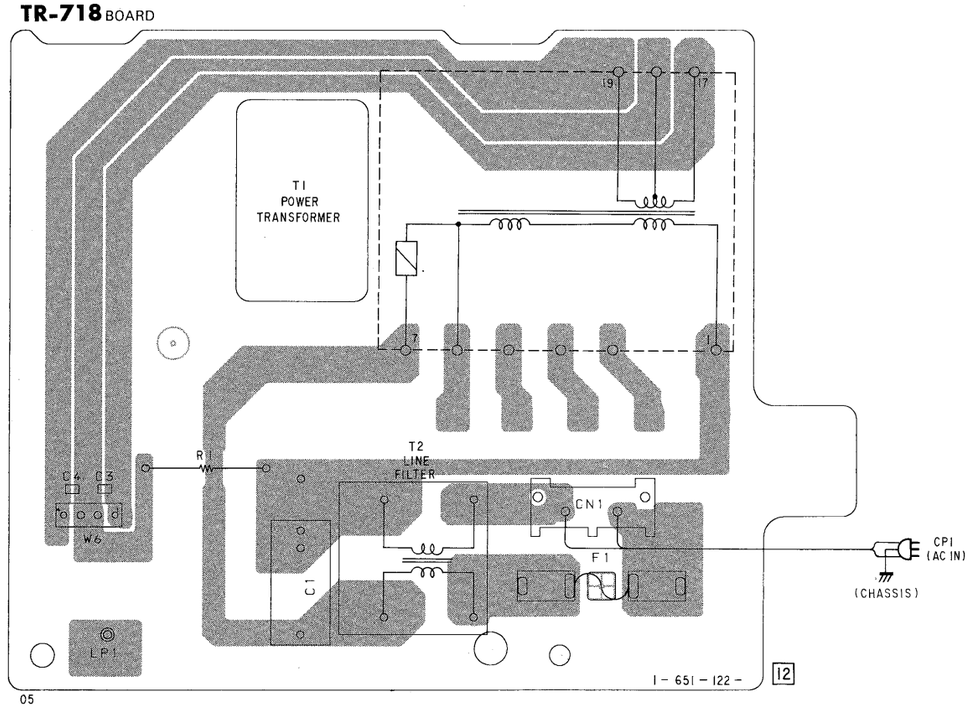
● No mark: Color-bar signal track on alignment disc playback.

05

PS-716 BOARD

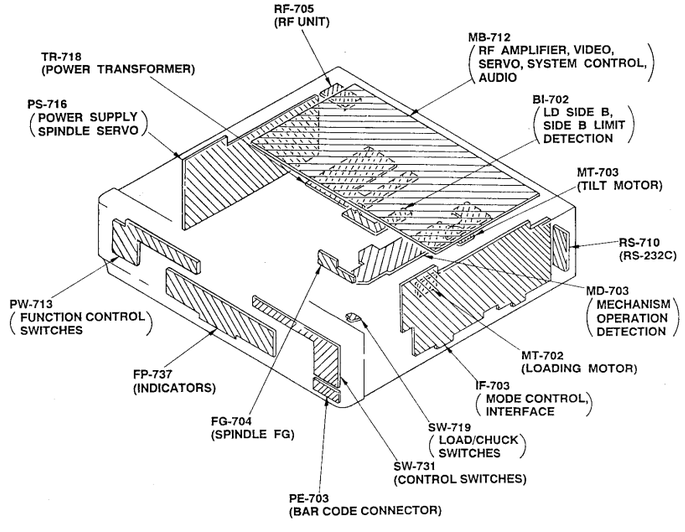


TR-718 BOARD



PS-716 BOARD

CN030	A-1
CN031	A-2
CN051	A-3
CN052	D-7
CN055	A-5
D031	C-2
D032	C-2
D033	B-2
D034	C-3
D035	B-3
D051	D-9
D052	D-9
D053	C-8
D054	D-8
D055	A-8
D056	A-8
D057	A-8
D058	B-9
D059	A-9
D060	A-9
D061	C-7
D701	A-7
D702	B-7
IC031	C-2
IC051	A-9
IC052	A-9
IC701	A-8
Q031	A-2
Q051	D-9
Q052	D-10
Q053	D-8
Q054	D-8
Q055	A-10
Q056	A-10
Q058	C-8
Q059	C-8
Q060	B-10
Q061	C-10
Q701	A-7
Q702	B-7



SECTION 5
REPAIR PARTS LIST

5-1. EXPLODED VIEWS

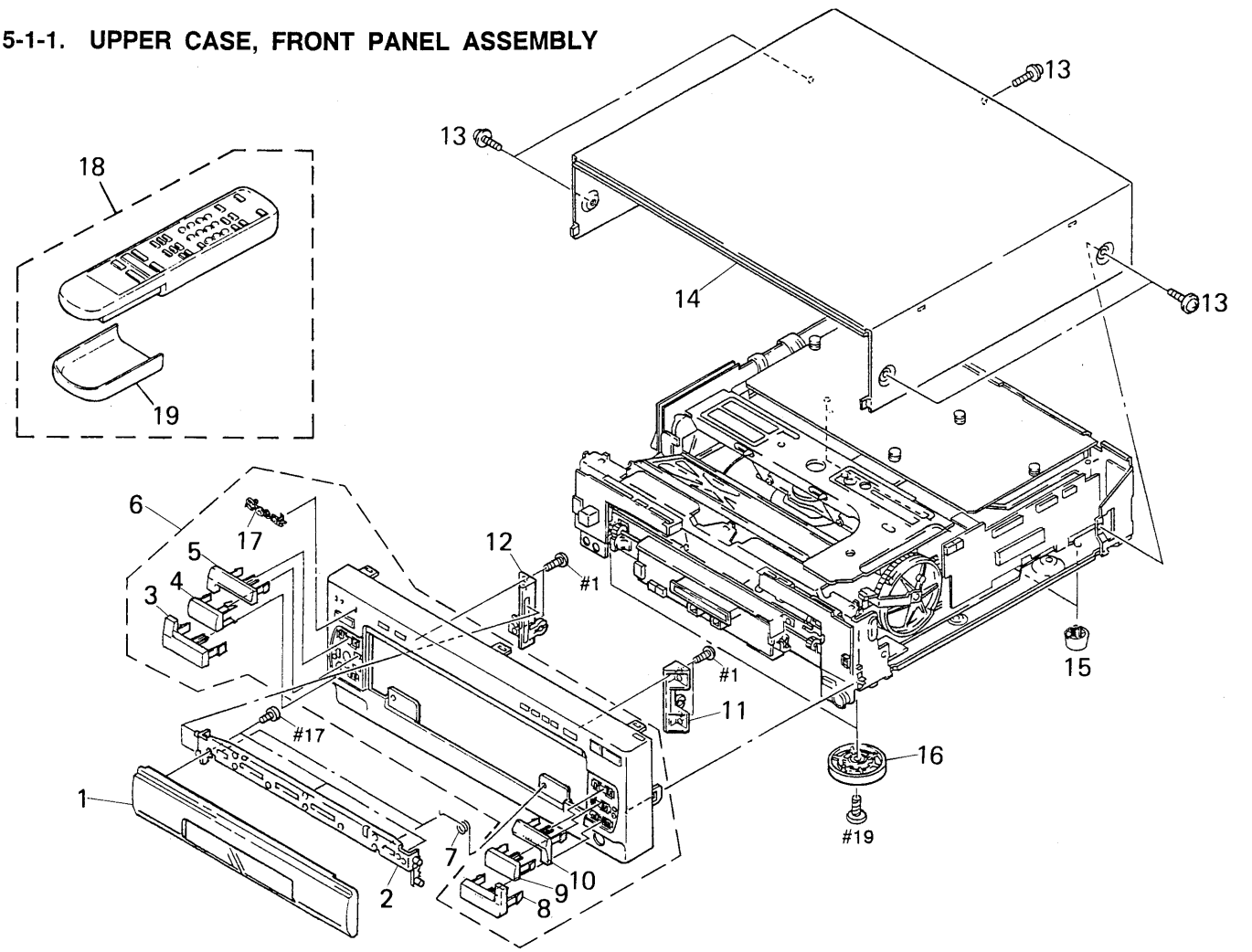
NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

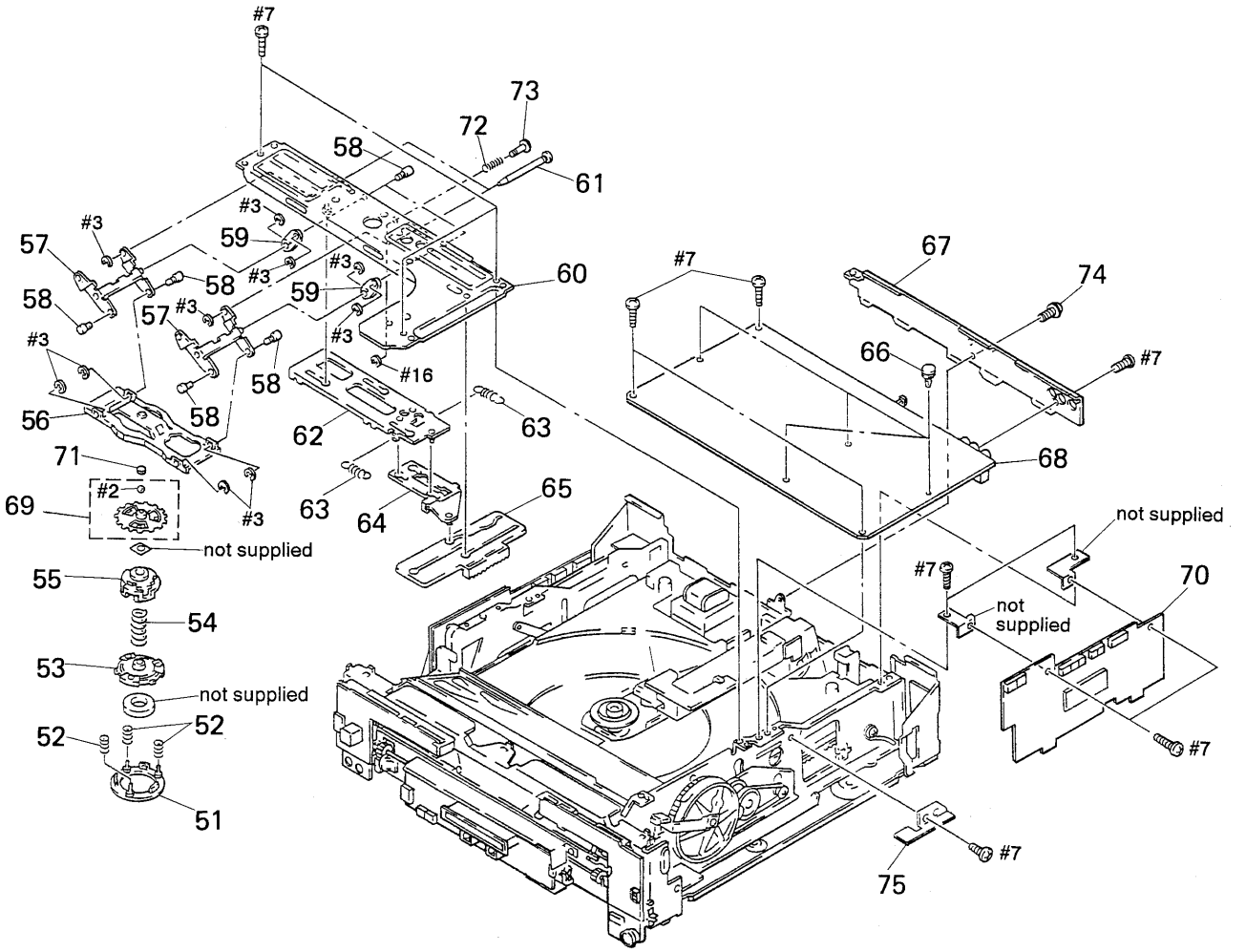
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le neméro spécifié.

5-1-1. UPPER CASE, FRONT PANEL ASSEMBLY



Ref. No.	Part No.	Description	Remark
1	X-3944-163-1	DOOR ASSY	
* 2	X-3944-235-1	DISK ASSY, DOOR	
3	3-956-061-51	BUTTON, DISPLAY	
4	3-956-062-01	WINDOW, REMOTE CONTROL	
5	3-956-060-41	BUTTON, OPEN	
6	X-3944-165-1	PANEL ASSY, FRONT	
7	3-957-697-01	SPRING, TORSION	
8	3-956-065-41	BUTTON, SIDE B	
9	3-956-066-11	BUTTON, PLAY	
10	3-956-064-41	BUTTON, SIDE A	
* 11	3-956-073-01	HOLDER (R), SLIDE	
* 12	3-956-074-01	HOLDER (L), SLIDE	
13	3-710-901-51	SCREW, TAPPING	
* 14	X-3944-164-2	CASE ASSY, UPPER	
* 15	3-957-819-01	FOOT	
16	X-3942-811-1	FOOT ASSY	
17	3-942-768-02	EMBLEM (NO.5), SONY	
18	1-467-603-21	REMOTE COMMANDER (RMT-M23A)	
19	9-900-029-01	LID, BATTERY CASE	

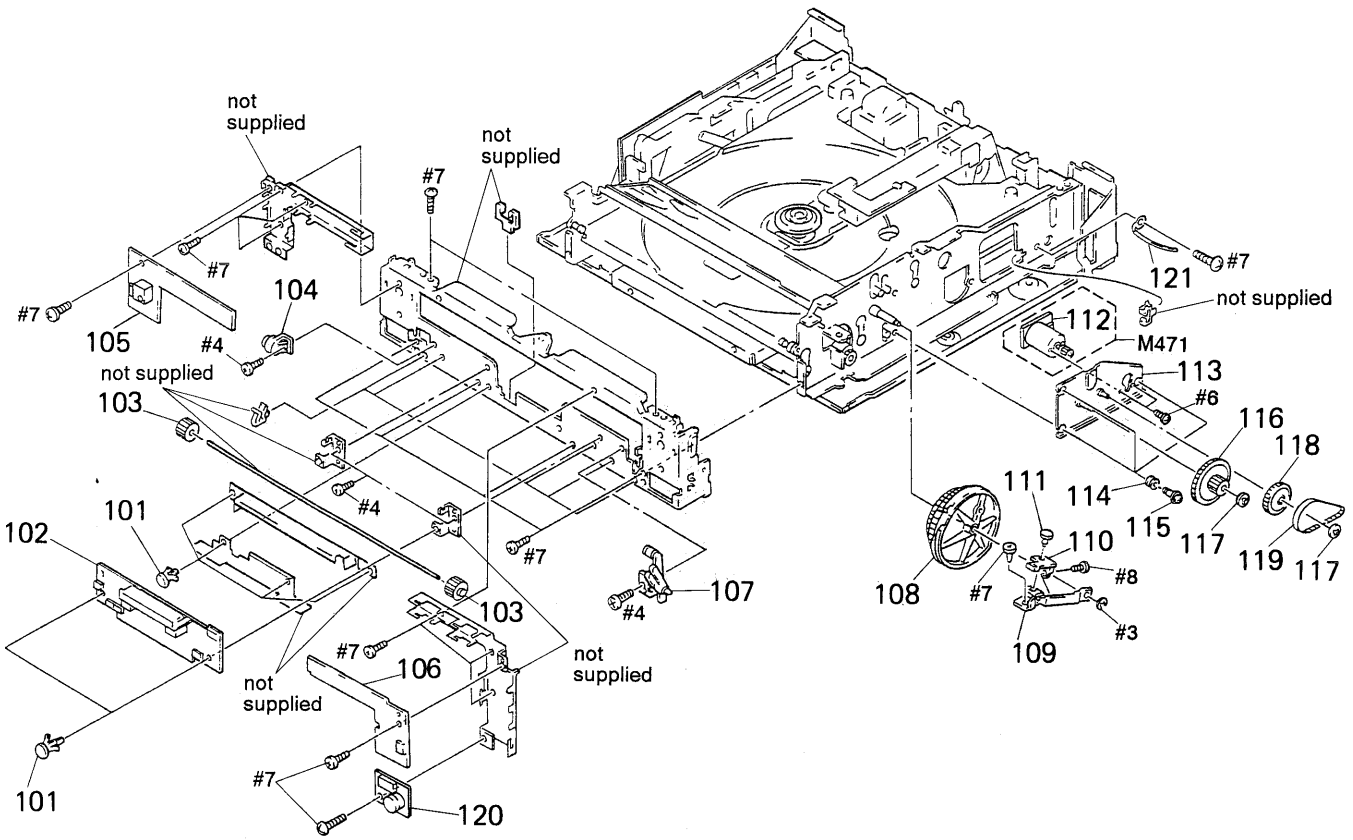
5-1-2. CHUCK FRAME ASSEMBLY



Ref. No.	Part No.	Description	Remark
51	X-3943-043-1	GUIDE (B) ASSY, CENTER	
52	3-953-290-01	SPRING (2), COMPRESSION	
53	X-3942-776-1	HOLDER ASSY, MAGNET	
54	3-953-291-01	SPRING (1), COMPRESSION	
55	3-953-288-01	PLATE, CHUCKING	
* 56	3-953-354-01	PLATE, CHUCK	
57	X-3942-801-1	ARM (L) ASSY	
* 58	3-953-345-01	SHAFT, ARM (S)	
* 59	3-953-352-01	ARM (S)	
60	X-3942-798-1	FRAME ASSY, CHUCK	
* 61	3-953-355-01	SHAFT, SLIDE	
62	X-3942-799-1	PLATE ASSY, SLIDE	
63	3-486-135-XX	SPRING, TENSION	

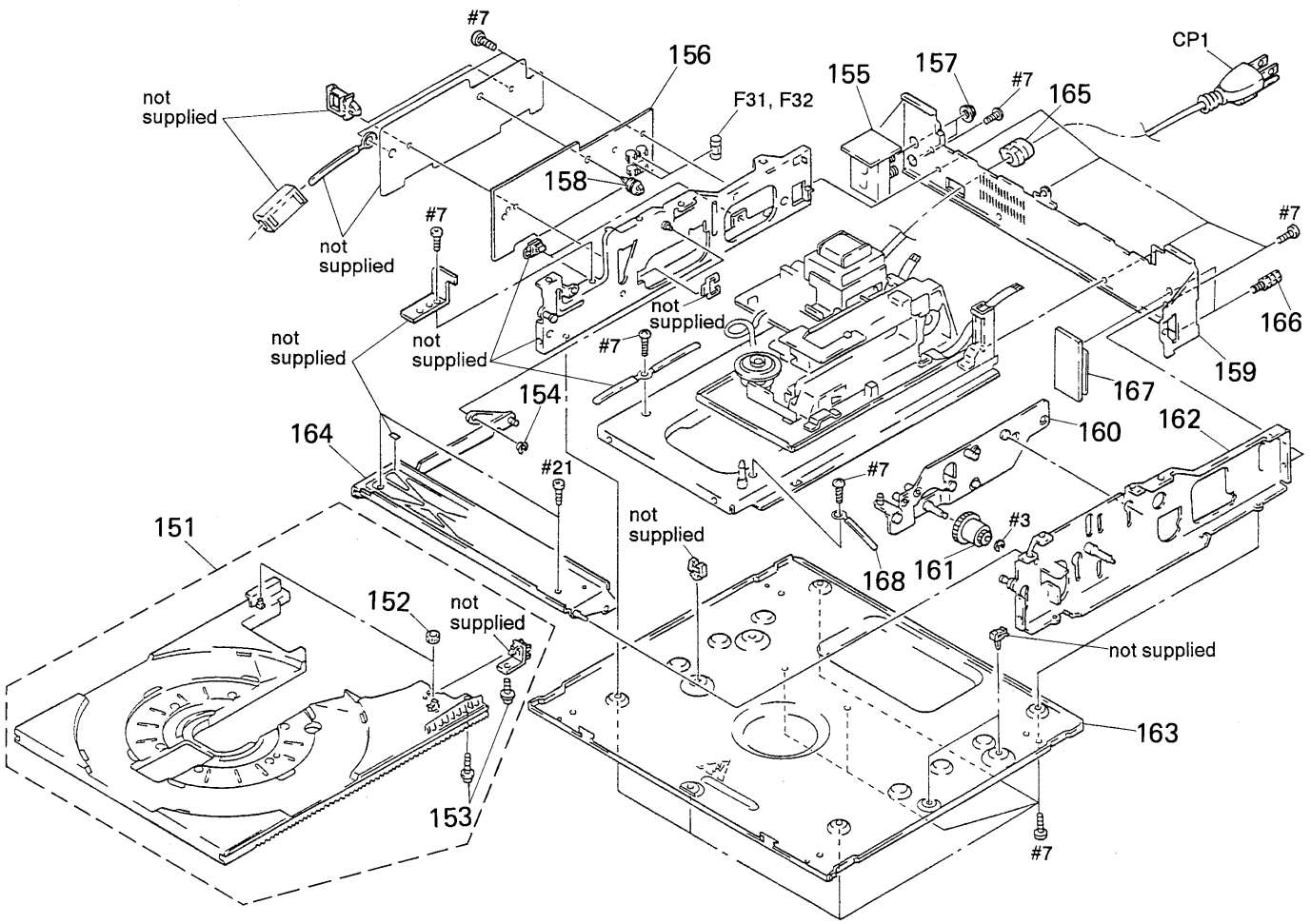
Ref. No.	Part No.	Description	Remark
64	X-3942-800-1	LIMITER ASSY	
65	3-953-348-01	CAM, CHUCK	
* 66	4-386-173-01	SPACER	
* 67	3-956-077-41	PLATE, JACK	
* 68	A-6423-154-A	MB-712 BOARD, COMPLETE	
69	X-3942-787-1	PLATE ASSY, TOP	
* 70	A-6423-160-A	IF-703 BOARD, COMPLETE	
71	3-953-392-01	RETAINER, THRUST	
72	3-353-241-01	SPRING, COMPRESSION	
* 73	3-953-831-01	STOPPER, OPT	
74	3-710-901-51	SCREW, TAPPING	
75	3-955-673-01	SPRING, LEAF	

5-1-3. SUB FRONT PANEL ASSEMBLY



Ref. No.	Part No.	Description	Remark
101	4-812-134-11	RIVET NYLON, 3.5	
* 102	A-6423-156-A	FP-737 BOARD, COMPLETE	
103	3-953-325-01	GEAR, PHASE	
104	4-919-393-01	DAMPER	
* 105	A-6423-157-A	PW-713 BOARD, COMPLETE	
* 106	A-6423-158-A	SW-731 BOARD, COMPLETE	
107	X-3942-786-1	LINK ASSY, DRIVING	
108	3-953-356-01	GEAR, CONTROL	
* 109	3-953-357-01	BRACKET, SW	
110	A-6421-954-A	SW-719 BOARD, COMPLETE	
111	3-531-576-11	RIVET	
112	A-6421-953-A	MT-702 BOARD, COMPLETE	
113	X-3942-805-1	BRACKET ASSY, GEAR	
114	3-570-118-00	CUSHION, MOTOR	
115	3-570-027-00	SCREW, MOTOR	
116	3-953-358-01	GEAR, MIDWAY	
117	3-669-595-00	WASHER (2), STOPPER	
118	3-953-394-01	PULLEY (A)	
119	3-953-393-01	BELT, TIMING	
* 120	A-6426-621-A	PE-703 BOARD, COMPLETE	
* 121	3-703-150-11	CLAMP	
M471	X-3942-963-1	MOTOR ASSY (LOADING)	

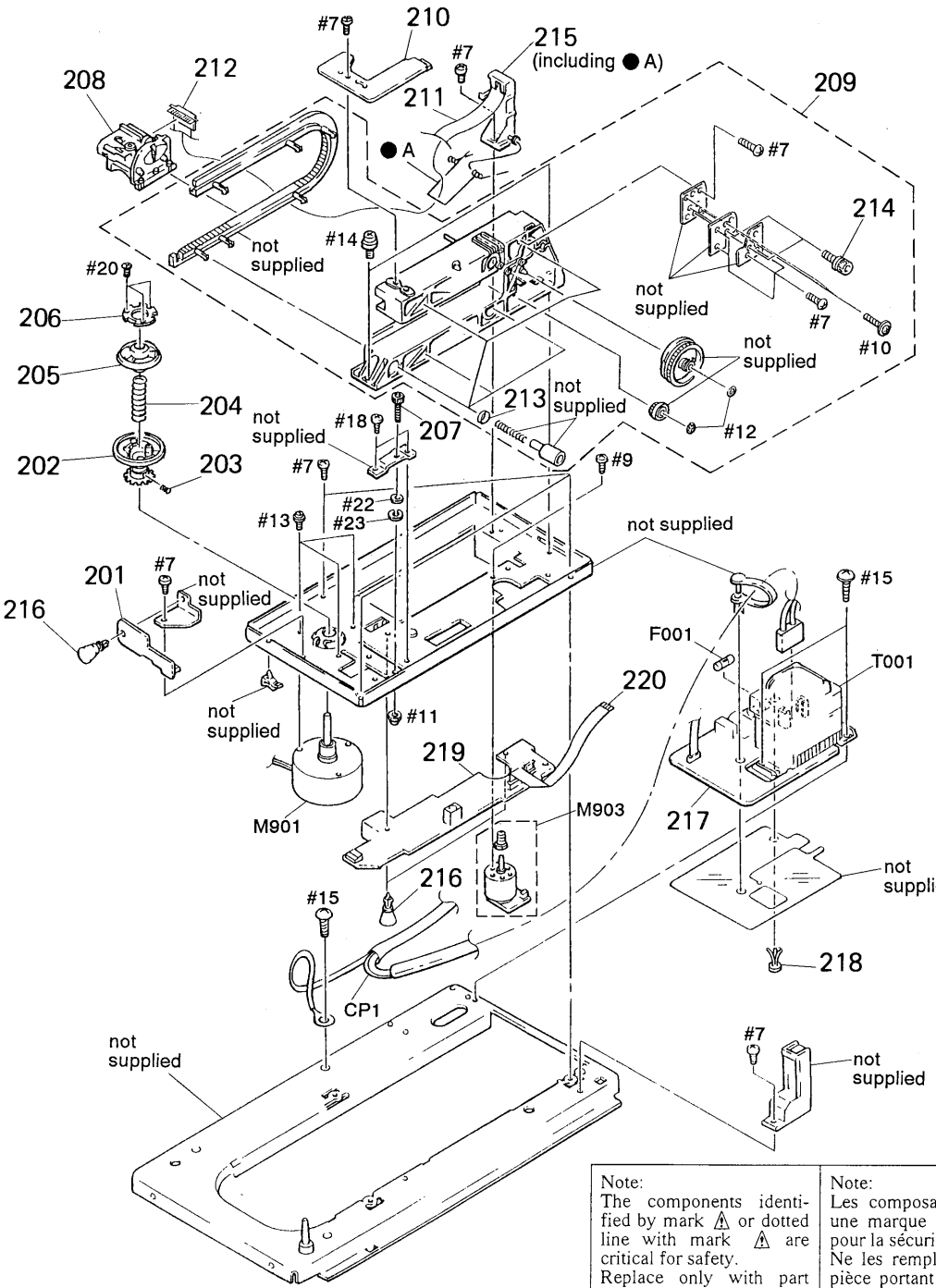
5-1-4. CHASSIS ASSEMBLY



Ref. No.	Part No.	Description	Remark
151	X-3942-780-1	TRAY ASSY	
* 152	4-914-248-01	STOPPER, RUBBER	
153	3-710-901-11	SCREW, TAPPING	
154	3-703-074-01	CAP 3, SHAFT	
* 155	A-6423-159-A	RF-705 BOARD, COMPLETE	
* 156	A-6423-161-A	PS-716 BOARD, COMPLETE	
157	3-682-691-00	NUT, WASHER HEXAGON	
* 158	4-884-834-00	SUPPORT, PC	
* 159	3-956-082-61	PANEL, REAR	
160	X-3942-802-1	PLATE ASSY, LOADING BASE	
161	3-953-361-01	GEAR, IDLER	
162	X-3943-483-1	FRAME (R) ASSY	
163	3-953-383-01	PLATE, BOTTOM	
164	X-3942-796-1	FRAME ASSY, TRAY (T)	
⚠165	2-352-626-01	BUSHING, CORD	
* 166	3-694-981-01	SCREW (INCH), D SUB	
* 167	A-6426-622-A	PS-710 BOARD, COMPLETE	
* 168	3-703-150-11	CLAMP	
⚠CP1	1-765-210-11	CORD, POWER (3 CORE)	
⚠F31	1-532-747-11	FUSE, GLASS TUBE 5A 125V	
⚠F32	1-532-747-11	FUSE, GLASS TUBE 5A 125V	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Note: Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le neméro spécifié.

5-1-5. MD CHASSIS ASSEMBLY



Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le neméro spécifié.

Ref. No.	Part No.	Description	Remark
201	A-6421-957-A	FG-704 BOARD, COMPLETE	
202	X-3942-779-1	TURNTABLE ASSY	
203	3-701-507-00	SET SCREW, DOUBLE POINT, (M3X5)	
204	3-953-289-01	SPRING (3), COMPRESSION	
205	3-953-292-01	GUIDE, CENTER	
206	3-953-293-01	PLATE (C), YOKE	
207	3-953-829-01	BOLT	
⚠208	8-848-286-11	DEVICE, OPTICAL KHS-150A (RP)	
209	A-6404-082-A	BASE BLOCK ASSY, FEED	
210	A-6421-958-A	BI-702 BOARD, COMPLETE	
211	1-751-083-11	CABLE, FLEXIBLE FLAT (18 CORE)	
212	3-953-268-01	HOLDER (18P), FLEXIBLE	
213	3-953-830-01	WASHER, U	
214	3-899-249-01	BOLT, HEXAGON SOCKET	
215	A-6404-076-A	STAND ASSY, FLEXIBLE RETAINER	
216	3-703-356-00	RIVET, T TYPE	
* 217	A-6423-155-A	TR-718 BOARD, COMPLETE	
218	3-531-576-11	RIVET	
* 219	A-6421-956-A	MD-703 BOARD, COMPLETE	
220	1-765-530-11	CABLE, FLEXIBLE FLAT (14 CORE)	
⚠F001	1-532-742-11	FUSE, GLASS TUBE 1.6A 125V	
M901	1-698-109-11	MOTOR, DD (SPINDLE)	
M903	X-3942-968-1	MOTOR BLOCK ASSY, TILT	
⚠T001	1-423-522-11	TRANSFORMER, POWER	

5-2. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ, for example:
  uA..: μA.. uPA..: μPA..
  uPB..: μPB.. uPC..: μPC.. uPD..: μPD..
- CAPACITORS
  uF: μF
- COILS
  uH: μH

When indicating parts by reference number, please include the board.

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remark
	A-6421-958-A	BI-702 BOARD, COMPLETE			
		**********			
		(Ref. No 2,000Series)			
	3-953-261-01	HOLDER, PD			
		< CAPACITOR >			
C401	1-163-035-00	CERAMIC CHIP	0.047uF		50V
		< CONNECTOR >			
CN401	1-506-484-11	PIN, CONNECTOR	5P		
		< DIODE >			
D401	8-729-020-74	DIODE	GP1S24		
D402	8-729-020-74	DIODE	GP1S24		
		< JUMPER RESISTOR >			
JR401	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR403	1-216-295-00	METAL CHIP	0	5%	1/10W
JR404	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR405	1-216-296-91	METAL GLAZE	0	5%	1/8W
		< TRANSISTOR >			
Q401	8-729-904-10	TRANSISTOR	PT-360FS		
Q402	8-729-904-10	TRANSISTOR	PT-360FS		
Q403	8-729-230-49	TRANSISTOR	2SC2712-YG		
Q404	8-729-230-49	TRANSISTOR	2SC2712-YG		
		< RESISTOR >			
R401	1-216-075-00	METAL CHIP	12K	5%	1/10W
R402	1-216-073-00	METAL CHIP	10K	5%	1/10W
R403	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R404	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R405	1-216-039-00	METAL CHIP	390	5%	1/10W
R406	1-216-111-00	METAL CHIP	390K	5%	1/10W
R407	1-216-099-00	METAL CHIP	120K	5%	1/10W
R408	1-216-073-00	METAL CHIP	10K	5%	1/10W
R409	1-216-073-00	METAL CHIP	10K	5%	1/10W
**********					

Ref. No.	Part No.	Description			Remark
	A-6421-957-A	FG-704 BOARD, COMPLETE			
		**********			
		(Ref. No 2,000Series)			
		< CAPACITOR >			
C411	1-163-035-00	CERAMIC CHIP	0.047uF		50V
		< CONNECTOR >			
CN411	1-691-863-11	CONNECTOR, BOARD TO BOARD			
		< DIODE >			
D411	8-729-020-74	DIODE	GP1S24		
D412	8-729-020-74	DIODE	GP1S24		
		< JUMPER RESISTOR >			
JR410	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR411	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR412	1-216-295-00	METAL CHIP	0	5%	1/10W
		< TRANSISTOR >			
Q411	8-729-216-22	TRANSISTOR	2SA1162-G		
Q412	8-729-216-22	TRANSISTOR	2SA1162-G		
		< RESISTOR >			
R411	1-216-037-00	METAL CHIP	330	5%	1/10W
R412	1-216-097-00	METAL CHIP	100K	5%	1/10W
R413	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R414	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R415	1-216-049-00	METAL CHIP	1K	5%	1/10W
R416	1-216-097-00	METAL CHIP	100K	5%	1/10W
R417	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R418	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R419	1-216-049-00	METAL CHIP	1K	5%	1/10W
**********					

Ref. No.	Part No.	Description			Remark
*	A-6423-156-A	FP-737 BOARD, COMPLETE			
		**********			
		(Ref. No 3,000Series)			
*	3-956-078-01	REFLECTOR			
		< CAPACITOR >			
C401	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C402	1-124-589-11	ELECT	47uF	20%	16V
		< CONNECTOR >			
CN401	1-506-484-11	PIN, CONNECTOR	5P		
CN402	1-506-485-11	PIN, CONNECTOR	6P		
CN404	1-506-485-11	PIN, CONNECTOR	6P		
		< DIODE >			
D401	8-719-955-04	LED PY5504S-1			
D402	8-719-955-04	LED PY5504S-1			
D410	8-719-302-07	LED SEL1810A			
		< TRANSISTOR >			
Q401	8-729-207-68	TRANSISTOR	RN2402		
Q402	8-729-207-68	TRANSISTOR	RN2402		
Q403	8-729-207-68	TRANSISTOR	RN2402		
		< RESISTOR >			
R401	1-216-037-00	METAL CHIP	330	5%	1/10W
R402	1-216-037-00	METAL CHIP	330	5%	1/10W
R410	1-216-037-00	METAL CHIP	330	5%	1/10W
		< SWITCH >			
S401	1-692-440-11	SWITCH, PUSH (DOOR)			
**********					
*	A-6423-160-A	IF-703 BOARD, COMPLETE			
		**********			
		(Ref. No 3,000Series)			
		< CAPACITOR >			
C301	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C302	1-126-947-11	ELECT	47uF	20%	10V
C303	1-126-964-11	ELECT	10uF	20%	50V
C305	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C306	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C307	1-163-031-11	CERAMIC CHIP	0.01uF		50V
⚠C308	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C310	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C311	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C312	1-126-947-11	ELECT	47uF	20%	10V

Ref. No.	Part No.	Description			Remark
C318	1-124-903-11	ELECT	1uF	20%	50V
C319	1-126-964-11	ELECT	10uF	20%	50V
C320	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C321	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C322	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C323	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C324	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C326	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C327	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C328	1-124-927-11	ELECT	4.7uF	20%	100V
C329	1-124-927-11	ELECT	4.7uF	20%	100V
C330	1-124-126-00	ELECT	47uF	20%	16V
C331	1-126-964-11	ELECT	10uF	20%	50V
C332	1-126-964-11	ELECT	10uF	20%	50V
C333	1-126-933-11	ELECT	100uF	20%	10V
C336	1-162-290-31	CERAMIC	470PF	10%	50V
C337	1-162-290-31	CERAMIC	470PF	10%	50V
C338	1-162-290-31	CERAMIC	470PF	10%	50V
C339	1-162-290-31	CERAMIC	470PF	10%	50V
		< CONNECTOR >			
CN301	1-506-483-21	PIN, CONNECTOR	4P		
CN302	1-506-484-11	PIN, CONNECTOR	5P		
CN303	1-506-485-11	PIN, CONNECTOR	6P		
* CN304	1-564-014-51	PIN, CONNECTOR	4P		
CN306	1-506-483-21	PIN, CONNECTOR	4P		
CN307	1-506-484-11	PIN, CONNECTOR	5P		
CN308	1-506-486-11	PIN, CONNECTOR	7P		
CN309	1-506-489-11	PIN, CONNECTOR	10P		
		< DIODE >			
⚠D301	8-719-988-62	DIODE	1SS355		
D302	8-719-106-70	DIODE	RD12M-B1		
D303	8-719-106-70	DIODE	RD12M-B1		
D304	8-719-106-70	DIODE	RD12M-B1		
D305	8-719-106-70	DIODE	RD12M-B1		
D306	8-719-106-70	DIODE	RD12M-B1		
D307	8-719-106-70	DIODE	RD12M-B1		
D310	8-719-105-92	DIODE	RD5.6M-B3		
D311	8-719-105-92	DIODE	RD5.6M-B3		
D312	8-719-105-92	DIODE	RD5.6M-B3		
D313	8-719-105-92	DIODE	RD5.6M-B3		
D314	8-719-106-70	DIODE	RD12M-B1		
D315	8-719-106-70	DIODE	RD12M-B1		
D316	8-719-106-70	DIODE	RD12M-B1		
		< FILTER >			
FL301	1-236-163-11	ENCAPSULATED COMPONENT			

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

IF-703

Ref. No.	Part No.	Description	Remark
		< IC >	
⚠IC301	8-759-285-49	IC MB89626P-G-171-SH (MODE CONTROL)	
IC303	8-759-032-01	IC MC74HC00AF (MAND GATE)	
IC304	8-759-208-11	IC TC4053BFHB (SELECTOR)	
IC306	8-759-631-90	IC M5M82C51AFP (RS-232C INTERFACE)	
IC307	8-759-013-15	IC MC145411P (BAND RATE GEN)	
IC308	8-759-065-85	IC MAX232CPE (RS-232C DRIVER/RECEIVER)	
IC310	8-759-074-40	IC PST572DMT-T1 (RESET)	
		< IC SOCKET >	
ICS301	1-540-044-11	SOCKET, IC 64P	
		< JUMPER RESISTOR >	
JR301	1-216-295-00	METAL CHIP 0 5% 1/10W	
		< COIL >	
L301	1-408-421-00	INDUCTOR 100uH	
L302	1-408-409-00	INDUCTOR 10uH	
L303	1-408-409-00	INDUCTOR 10uH	
		< TRANSISTOR >	
Q301	8-729-207-69	TRANSISTOR RN2403	
Q302	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q303	8-729-207-58	TRANSISTOR RN1404	
Q304	8-729-207-58	TRANSISTOR RN1404	
Q305	8-729-216-22	TRANSISTOR 2SA1162-G	
		< RESISTOR >	
R301	1-216-037-00	METAL CHIP 330 5% 1/10W	
R302	1-216-037-00	METAL CHIP 330 5% 1/10W	
R303	1-216-037-00	METAL CHIP 330 5% 1/10W	
R305	1-216-295-00	METAL CHIP 0 5% 1/10W	
R306	1-216-295-00	METAL CHIP 0 5% 1/10W	
R307	1-216-295-00	METAL CHIP 0 5% 1/10W	
R308	1-216-025-00	METAL CHIP 100 5% 1/10W	
R309	1-216-037-00	METAL CHIP 330 5% 1/10W	
R310	1-216-295-00	METAL CHIP 0 5% 1/10W	
R311	1-216-295-00	METAL CHIP 0 5% 1/10W	
R312	1-216-295-00	METAL CHIP 0 5% 1/10W	
R313	1-216-037-00	METAL CHIP 330 5% 1/10W	
R314	1-216-033-00	METAL CHIP 220 5% 1/10W	
R315	1-216-198-91	METAL GLAZE 1K 5% 1/8W	
R316	1-216-073-00	METAL CHIP 10K 5% 1/10W	
⚠R317	1-208-782-11	METAL GLAZE 1K 0.50% 1/10W	
⚠R318	1-208-806-11	METAL GLAZE 10K 0.50% 1/10W	
R319	1-216-033-00	METAL CHIP 220 5% 1/10W	
R320	1-216-033-00	METAL CHIP 220 5% 1/10W	
R321	1-216-033-00	METAL CHIP 220 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R322	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R323	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R324	1-216-033-00	METAL CHIP 220 5% 1/10W	
R325	1-216-033-00	METAL CHIP 220 5% 1/10W	
R326	1-216-025-00	METAL CHIP 100 5% 1/10W	
R327	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R328	1-216-025-00	METAL CHIP 100 5% 1/10W	
R329	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R331	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R333	1-208-806-11	METAL GLAZE 10K 0.50% 1/10W	
R334	1-208-806-11	METAL GLAZE 10K 0.50% 1/10W	
R335	1-208-806-11	METAL GLAZE 10K 0.50% 1/10W	
⚠R336	1-208-806-11	METAL GLAZE 10K 0.50% 1/10W	
⚠R337	1-208-806-11	METAL GLAZE 10K 0.50% 1/10W	
R338	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R339	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R340	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R341	1-216-295-00	METAL CHIP 0 5% 1/10W	
R343	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R344	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R345	1-216-198-91	METAL GLAZE 1K 5% 1/8W	
R346	1-216-198-91	METAL GLAZE 1K 5% 1/8W	
R347	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R348	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R349	1-216-190-00	METAL GLAZE 470 5% 1/8W	
R350	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R351	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R352	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R363	1-216-025-00	METAL CHIP 100 5% 1/10W	
R364	1-216-025-00	METAL CHIP 100 5% 1/10W	
R365	1-216-033-00	METAL CHIP 220 5% 1/10W	
R366	1-216-033-00	METAL CHIP 220 5% 1/10W	
R367	1-216-033-00	METAL CHIP 220 5% 1/10W	
R368	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R369	1-216-033-00	METAL CHIP 220 5% 1/10W	
R370	1-216-003-11	METAL GLAZE 12 5% 1/10W	
R371	1-216-033-00	METAL CHIP 220 5% 1/10W	
R372	1-216-033-00	METAL CHIP 220 5% 1/10W	
R374	1-216-295-00	METAL CHIP 0 5% 1/10W	
R375	1-216-295-00	METAL CHIP 0 5% 1/10W	
R376	1-216-033-00	METAL CHIP 220 5% 1/10W	
R377	1-216-295-00	METAL CHIP 0 5% 1/10W	
R378	1-216-210-00	METAL GLAZE 3.3K 5% 1/8W	
R379	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R380	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R381	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R383	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R384	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R385	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remark
R386	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
		< SPEAKER >			
SP301	1-529-080-11	BUZZER, PIEZOELECTRIC			
		< VIBRATOR >			
X301	1-579-125-11	VIBRATOR, CERAMIC (8MHz)			
X302	1-567-889-11	VIBRATOR, CRYSTAL (1.843MHz)			
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*	A-6423-154-A	MB-712 BOARD, COMPLETE			
		**********			
		(Ref. No 1,000Series)			
		< CAPACITOR >			
C002	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C003	1-126-154-11	ELECT	47uF	20%	6.3V
C004	1-124-465-00	ELECT	0.47uF	20%	50V
C005	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C006	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C007	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C008	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C009	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C010	1-137-370-11	FILM	0.01uF	5%	50V
C011	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C012	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C013	1-126-947-11	ELECT	47uF	20%	10V
C014	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C015	1-130-489-00	MYLAR	0.033uF	5%	50V
C016	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C017	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C018	1-126-916-11	ELECT	1000uF	20%	6.3V
C019	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C020	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C021	1-126-947-11	ELECT	47uF	20%	10V
C022	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C023	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C024	1-137-399-11	FILM	0.1uF	5%	50V
C025	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C026	1-126-947-11	ELECT	47uF	20%	10V
C027	1-126-947-11	ELECT	47uF	20%	10V
C028	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C029	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C030	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C031	1-163-107-00	CERAMIC CHIP	39PF	5%	50V
C032	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C034	1-137-374-11	FILM	0.047uF	5%	50V
C035	1-130-489-00	MYLAR	0.033uF	5%	50V
C036	1-137-440-11	FILM	0.018uF	5%	50V
C037	1-130-489-00	MYLAR	0.033uF	5%	50V
C038	1-124-903-11	ELECT	1uF	20%	50V
C039	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C040	1-124-925-11	ELECT	2.2uF	20%	100V
C041	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C042	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C043	1-137-370-11	FILM	0.01uF	5%	50V
C044	1-126-947-11	ELECT	47uF	20%	10V
C045	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C046	1-126-947-11	ELECT	47uF	20%	10V
C047	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C048	1-137-370-11	FILM	0.01uF	5%	50V
C049	1-124-903-11	ELECT	1uF	20%	50V
C050	1-137-374-11	FILM	0.047uF	5%	50V
C051	1-124-903-11	ELECT	1uF	20%	50V
C052	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C053	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C054	1-126-947-11	ELECT	47uF	20%	10V
C055	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C056	1-126-947-11	ELECT	47uF	20%	10V
C057	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C058	1-126-947-11	ELECT	47uF	20%	10V
C059	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C060	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C061	1-126-947-11	ELECT	47uF	20%	10V
C063	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C064	1-163-139-00	CERAMIC CHIP	820PF	5%	50V
C065	1-137-374-11	FILM	0.047uF	5%	50V
C066	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C067	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C068	1-126-916-11	ELECT	1000uF	20%	6.3V
C069	1-163-253-11	CERAMIC CHIP	120PF	5%	50V
C070	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C071	1-126-947-11	ELECT	47uF	20%	10V
C072	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C073	1-163-253-11	CERAMIC CHIP	120PF	5%	50V
C074	1-124-903-11	ELECT	1uF	20%	50V
C075	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C076	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C077	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C078	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C079	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C080	1-163-253-11	CERAMIC CHIP	120PF	5%	50V
C081	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C082	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C083	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C084	1-124-292-00	ELECT	33uF	20%	6.3V
C085	1-163-038-00	CERAMIC CHIP	0.1uF		25V

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Ref. No.	Part No.	Description			Remark
C086	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C087	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C088	1-163-257-11	CERAMIC CHIP	180PF	5%	50V
C089	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C090	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C091	1-126-947-11	ELECT	47uF	20%	10V
C092	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C093	1-163-257-11	CERAMIC CHIP	180PF	5%	50V
C094	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C095	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C096	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C097	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C098	1-126-947-11	ELECT	47uF	20%	10V
C099	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C100	1-124-903-11	ELECT	1uF	20%	50V
C101	1-137-372-11	FILM	0.022uF	5%	50V
C102	1-137-370-11	FILM	0.01uF	5%	50V
C103	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C104	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C105	1-131-347-00	TANTALUM	1uF	10%	35V
C106	1-124-903-11	ELECT	1uF	20%	50V
C107	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C108	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C109	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C110	1-126-947-11	ELECT	47uF	20%	10V
C111	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C112	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C113	1-124-925-11	ELECT	2.2uF	20%	100V
C114	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C115	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C116	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C117	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C118	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C119	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C120	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C121	1-124-925-11	ELECT	2.2uF	20%	100V
C122	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C123	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C124	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C125	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C126	1-126-947-11	ELECT	47uF	20%	10V
C127	1-126-947-11	ELECT	47uF	20%	10V
C128	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C129	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C130	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C131	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C132	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C133	1-163-133-00	CERAMIC CHIP	470PF	5%	50V

Ref. No.	Part No.	Description			Remark
C134	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C136	1-163-116-00	CERAMIC CHIP	91PF	5%	50V
C138	1-126-964-11	ELECT	10uF	20%	50V
C139	1-126-964-11	ELECT	10uF	20%	50V
C140	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C141	1-126-947-11	ELECT	47uF	20%	10V
C147	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C148	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C149	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C150	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C151	1-163-077-91	CERAMIC CHIP	0.1uF		50V
C152	1-126-947-11	ELECT	47uF	20%	10V
C153	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C154	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C158	1-124-925-11	ELECT	2.2uF	20%	100V
C160	1-126-947-11	ELECT	47uF	20%	10V
C162	1-126-947-11	ELECT	47uF	20%	10V
C163	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C164	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C165	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C166	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C167	1-163-249-11	CERAMIC CHIP	82PF	5%	50V
C168	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C169	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C170	1-126-947-11	ELECT	47uF	20%	10V
C171	1-126-947-11	ELECT	47uF	20%	10V
C172	1-126-947-11	ELECT	47uF	20%	10V
C173	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C174	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C201	1-126-947-11	ELECT	47uF	20%	10V
C203	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C204	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C206	1-124-927-11	ELECT	4.7uF	20%	100V
C207	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C208	1-126-964-11	ELECT	10uF	20%	50V
C211	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C212	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C213	1-126-947-11	ELECT	47uF	20%	10V
C214	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C215	1-137-368-11	FILM	0.0047uF	5%	50V
C216	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C218	1-126-947-11	ELECT	47uF	20%	10V
C219	1-124-927-11	ELECT	4.7uF	20%	100V
C220	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C221	1-126-947-11	ELECT	47uF	20%	10V
C222	1-137-433-11	FILM	0.0012uF	5%	50V
C225	1-126-947-11	ELECT	47uF	20%	10V
C226	1-137-433-11	FILM	0.0012uF	5%	50V
C227	1-163-038-00	CERAMIC CHIP	0.1uF		25V

Ref. No.	Part No.	Description			Remark
C228	1-124-927-11	ELECT	4.7uF	20%	100V
C229	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C230	1-126-947-11	ELECT	47uF	20%	10V
C231	1-126-947-11	ELECT	47uF	20%	10V
C232	1-124-927-11	ELECT	4.7uF	20%	100V
C234	1-124-927-11	ELECT	4.7uF	20%	100V
C236	1-124-927-11	ELECT	4.7uF	20%	100V
C237	1-137-368-11	FILM	0.0047uF	5%	50V
C238	1-126-947-11	ELECT	47uF	20%	10V
C239	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C240	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C241	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C243	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C244	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C245	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C246	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C248	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C249	1-163-128-00	CERAMIC CHIP	300PF	5%	50V
C251	1-124-287-00	ELECT	10uF	20%	10V
C252	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C253	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C254	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C255	1-124-499-11	ELECT, NONPOLAR	1uF	20%	50V
C256	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C257	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C258	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C259	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C260	1-126-947-11	ELECT	47uF	20%	10V
C261	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C262	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C263	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C264	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C265	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C266	1-164-346-11	CERAMIC CHIP	1uF		16V
C267	1-126-947-11	ELECT	47uF	20%	10V
C268	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C269	1-126-947-11	ELECT	47uF	20%	10V
C270	1-126-947-11	ELECT	47uF	20%	10V
C271	1-124-287-00	ELECT	10uF	20%	10V
C272	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C273	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C274	1-137-368-11	FILM	0.0047uF	5%	50V
C275	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C276	1-126-947-11	ELECT	47uF	20%	10V
C277	1-137-399-11	FILM	0.1uF	5%	50V
C278	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C279	1-137-442-11	FILM	0.039uF	5%	50V
C280	1-124-288-00	ELECT	22uF	20%	6.3V

Ref. No.	Part No.	Description			Remark
C281	1-126-933-11	ELECT	100uF	20%	10V
C282	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C283	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C284	1-124-288-00	ELECT	22uF	20%	6.3V
C285	1-137-442-11	FILM	0.039uF	5%	50V
C286	1-124-902-00	ELECT	0.47uF	20%	50V
C287	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C288	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C289	1-137-368-11	FILM	0.0047uF	5%	50V
C290	1-126-947-11	ELECT	47uF	20%	10V
C291	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C292	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C293	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C294	1-163-119-00	CERAMIC CHIP	120PF	5%	50V
C297	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C299	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C301	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C307	1-163-119-00	CERAMIC CHIP	120PF	5%	50V
C399	1-216-295-00	METAL CHIP	0	5%	1/10W
C400	1-164-346-11	CERAMIC CHIP	1uF		16V
C401	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C402	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C403	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C405	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C406	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C407	1-124-277-11	ELECT	4.7uF	20%	35V
C408	1-163-022-00	CERAMIC CHIP	0.012uF	10%	50V
C409	1-163-024-00	CERAMIC CHIP	0.018uF	10%	50V
C410	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C411	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C413	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C414	1-124-767-00	ELECT	2.2uF	20%	50V
C415	1-163-014-00	CERAMIC CHIP	0.0027uF	5%	50V
C416	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C417	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C419	1-163-016-00	CERAMIC CHIP	0.0039uF	10%	50V
C421	1-124-499-11	ELECT, NONPOLAR	1uF	20%	50V
C422	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C423	1-124-287-00	ELECT	10uF	20%	10V
C424	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C425	1-124-273-00	ELECT	3.3uF	20%	50V
C427	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C428	1-126-947-11	ELECT	47uF	20%	35V
C429	1-163-249-11	CERAMIC CHIP	82PF	5%	50V
C430	1-126-947-11	ELECT	47uF	20%	35V
C432	1-163-022-00	CERAMIC CHIP	0.012uF	10%	50V
C433	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C434	1-163-024-00	CERAMIC CHIP	0.018uF	10%	50V

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Ref. No.	Part No.	Description			Remark
C435	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C436	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C437	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C438	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C439	1-126-947-11	ELECT	47uF	20%	10V
C440	1-126-947-11	ELECT	47uF	20%	10V
C441	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C442	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C443	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C444	1-126-160-11	ELECT	1uF	20%	50V
C445	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C446	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C447	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C448	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C449	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C450	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C451	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C452	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C463	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C465	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C466	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C467	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C468	1-164-699-11	CERAMIC CHIP	0.0033uF	5%	50V
C469	1-163-088-00	CERAMIC CHIP	5PF		50V
C500	1-126-947-11	ELECT	47uF	20%	10V
C501	1-128-453-21	ELECT CHIP	47uF	20%	6.3V
C502	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C503	1-126-603-11	ELECT CHIP	4.7uF	20%	35V
C504	1-163-245-11	CERAMIC CHIP	56PF	5%	50V
C505	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C506	1-128-024-11	ELECT CHIP	4.7uF	0	10V
C507	1-126-947-11	ELECT	47uF	20%	35V
C508	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C509	1-128-021-11	ELECT CHIP	15uF	0	6.3V
C510	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C511	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C512	1-163-257-11	CERAMIC CHIP	180PF	5%	50V
C513	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C514	1-163-257-11	CERAMIC CHIP	180PF	5%	50V
C515	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C516	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C517	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C518	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C519	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C520	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C521	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C522	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C523	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C526	1-137-364-11	FILM	0.001uF	5%	50V
C527	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C529	1-137-366-11	FILM	0.0022uF	5%	50V
C530	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C531	1-124-925-11	ELECT	2.2uF	20%	100V
C533	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C590	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C801	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C802	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C950	1-126-964-11	ELECT	10uF	20%	50V
		< FILTER >			
CF001	1-527-831-00	FILTER, CERAMIC			
		< CONNECTOR >			
* CN210	1-568-783-11	PIN, CONNECTOR 6P			
CN401	1-750-687-11	HOUSING, CONNECTOR (PC BOARD)			
* CN402	1-764-594-21	CONNECTOR, FPC 18P			
* CN403	1-764-595-21	CONNECTOR, FPC 14P			
CN501	1-506-468-11	PIN, CONNECTOR 3P			
CN502	1-506-469-11	PIN, CONNECTOR 4P			
CN503	1-506-472-11	PIN, CONNECTOR 7P			
CN504	1-506-470-11	PIN, CONNECTOR 5P			
* CN505	1-568-783-11	PIN, CONNECTOR 6P			
CN701	1-506-473-11	PIN, CONNECTOR 8P			
		< TRIMMER >			
CT001	1-141-442-91	TRIMMER, CERAMIC			
CT501	1-141-424-11	CAP, ADJ			
		< DIODE >			
D001	8-719-105-52	DIODE	RD3.6M-B2		
D002	8-719-801-78	DIODE	1SS184		
D003	8-719-988-62	DIODE	1SS355		
D202	8-719-105-82	DIODE	RD5.1M-B2		
D203	8-719-032-05	DIODE	KV1460TL00		
D204	8-719-800-76	DIODE	1SS226		
D205	8-719-801-78	DIODE	1SS184		
D208	8-719-801-78	DIODE	1SS184		
D251	8-719-800-76	DIODE	1SS226		
D401	8-719-800-76	DIODE	1SS226		
D402	8-719-800-76	DIODE	1SS226		
D403	8-719-800-76	DIODE	1SS226		
D405	8-719-988-62	DIODE	1SS355		
D502	8-719-402-34	DIODE	MA3120-TX		
D503	8-719-988-62	DIODE	1SS355		
D506	8-719-104-34	DIODE	1S2836		
D507	8-719-988-62	DIODE	1SS355		
D508	8-719-988-62	DIODE	1SS355		

Ref. No.	Part No.	Description	Remark
		< FERRITE BEAD >	
FB201	1-550-907-21	BEAD, FERRITE (CHIP)	
FB202	1-550-907-21	BEAD, FERRITE (CHIP)	
FB203	1-550-907-21	BEAD, FERRITE (CHIP)	
		< FILTER >	
FL001	1-424-031-11	FILTER, NOISE	
FL002	1-424-031-11	FILTER, NOISE	
FL003	1-235-901-11	FILTER, LOW PASS	
FL004	1-236-478-11	FILTER, LOW PASS	
FL005	1-239-823-11	FILTER, CHROMA TRAP	
FL006	1-236-843-11	FILTER, BAND PASS	
FL007	1-239-824-11	LPF (3MHZ)	
FL008	1-408-409-00	INDUCTOR 10uH	
FL201	1-424-031-11	FILTER, NOISE	
FL202	1-424-031-11	FILTER, NOISE	
FL203	1-424-031-11	FILTER, NOISE	
FL204	1-236-744-21	FILTER, EMI	
FL205	1-760-185-11	FILTER, CERAMIC	
FL206	1-760-186-11	FILTER, CERAMIC	
FL401	1-235-922-11	FILTER, LOW PASS (1.7MHz)	
FL501	1-236-744-21	FILTER, EMI	
FL502	1-236-744-21	FILTER, EMI	
		< IC >	
IC001	8-759-058-52	IC XRA10324AF-E2 (AMP)	
IC002	8-759-058-52	IC XRA10324AF-E2 (AMP)	
IC003	8-759-100-97	IC uPC339G2 (HYSTERESIS COMPARATOR)	
IC004	8-752-353-92	IC CXL5005M-T4 (CCD IH DELAY)	
IC005	8-759-233-64	IC TC74HCU04AF (INVERTER)	
IC006	8-759-257-87	IC MM1117XFBE (SWITCH)	
IC007	8-752-055-37	IC CXA1255Q (VIDEO SIGNAL PROCESSOR)	
IC008	8-759-502-69	IC CXD1152-MS (C MOS INV(TBC))	
IC009	8-752-055-36	IC CXA1254Q (DEMOD)	
IC011	8-759-278-25	IC MB90085PF-G-153-BND-EF (CHARACTER GEN)	
IC201	8-759-093-98	IC CXD8451M (D/A CONV)	
IC202	8-759-008-67	IC MC14066BF (LINE OUT SELECT)	
IC203	8-752-352-93	IC CXD2500BQ (DIGITAL SIGNAL PROCESSOR)	
IC204	8-759-253-26	IC CA0002AM-TP (AFM DEMOD/CX NR)	
IC205	8-759-100-96	IC uPC4558G2 (CD SPINDLE ERROR AMP)	
IC206	8-759-100-96	IC uPC4558G2 (L.P.F)	
IC207	8-759-100-96	IC uPC4558G2 (L.P.F)	
IC209	8-759-100-96	IC uPC4558G2 (AMP)	
IC212	8-759-100-96	IC uPC4558G2 (AMP)	
IC401	8-752-056-79	IC CXA1632Q (SERVO)	
⚠IC402	8-759-048-30	IC LA6510L (SLED DRIVE AMP)	
IC403	8-759-300-71	IC HD14053BFP (SWITCH)	
IC404	8-759-300-71	IC HD14053BFP (SWITCH)	

Ref. No.	Part No.	Description	Remark
IC405	8-759-058-52	IC XRA10324AF-E2 (TILT ERROR AMP)	
IC406	8-759-100-96	IC uPC4558G2 (TRACKING/FOCUS DRIVE AMP)	
IC409	8-759-100-96	IC uPC4558G2 (PHASE AMP)	
IC410	8-759-242-64	IC TC4W53F (RF AMP)	
IC411	8-759-100-96	IC uPC4558G2 (PHASE AMP)	
IC420	8-759-242-64	IC TC4W53F (TRACKING ERROR AMP)	
IC500	8-759-100-97	IC uPC339G2 (COMPARATOR)	
IC501	8-759-289-67	IC MB89094PF-G-125-BND (SYSTEM CONTROL(MASTER))	
IC502	8-759-098-78	IC MB606F06 (SYSTEM CONTROL(SLAVE))	
IC503	8-759-973-95	IC BA6219B (MOTOR DRIVE)	
IC504	8-759-058-52	IC XRA10324AF-E2 (AMP)	
IC505	8-759-009-06	IC MC14052BF (SPINDLE ERROR SIGNAL SELECT)	
IC506	8-759-300-71	IC HD14053BFP (SWITCH)	
IC507	8-759-206-28	IC MC74HC123AF (MONO MULTI)	
		< JACK >	
J201	1-764-592-11	JACK 3P (VIDEO OUT/AUDIO OUT)	
		< JUMPER RESISTOR >	
JR009	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR010	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR201	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR202	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR203	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR205	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR207	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR210	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR280	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR285	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR401	1-216-296-91	METAL GLAZE 0 5% 1/8W	
		< COIL >	
L001	1-408-609-41	INDUCTOR 33uH	
L002	1-408-609-41	INDUCTOR 33uH	
L003	1-408-419-00	INDUCTOR 68uH	
L004	1-408-609-41	INDUCTOR 33uH	
L006	1-408-609-41	INDUCTOR 33uH	
L007	1-408-409-00	INDUCTOR 10uH	
L008	1-410-657-21	INDUCTOR CHIP 180uH	
L009	1-408-609-41	INDUCTOR 33uH	
L010	1-408-609-41	INDUCTOR 33uH	
L011	1-408-422-00	INDUCTOR 120uH	
L013	1-408-609-41	INDUCTOR 33uH	
L014	1-408-609-41	INDUCTOR 33uH	
L015	1-410-385-11	INDUCTOR CHIP 22uH	
L016	1-408-609-41	INDUCTOR 33uH	

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description	Remark
L017	1-408-773-31	INDUCTOR CHIP 4.7uH	
L201	1-408-421-00	INDUCTOR 100uH	
L202	1-408-418-00	INDUCTOR 56uH	
L210	1-408-417-00	INDUCTOR 47uH	
L401	1-408-409-00	INDUCTOR 10uH	
L402	1-408-409-00	INDUCTOR 10uH	
L403	1-408-409-00	INDUCTOR 10uH	
L404	1-408-409-00	INDUCTOR 10uH	
L405	1-408-609-41	INDUCTOR 33uH	
L501	1-410-381-11	INDUCTOR CHIP 10uH	
		< TRANSISTOR >	
Q001	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q002	8-729-140-75	TRANSISTOR 2SD999-CLCK	
Q003	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q004	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q005	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q006	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q007	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q008	8-729-216-22	TRANSISTOR 2SA1162-G	
Q009	8-729-216-22	TRANSISTOR 2SA1162-G	
Q010	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q011	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q012	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q013	8-729-216-22	TRANSISTOR 2SA1162-G	
Q014	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q015	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q016	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q017	8-729-216-22	TRANSISTOR 2SA1162-G	
Q018	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q019	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q021	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q024	8-729-216-22	TRANSISTOR 2SA1162-G	
Q026	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q031	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q201	8-729-901-04	TRANSISTOR DTA114EK	
Q202	8-729-900-53	TRANSISTOR DTC114EK	
Q203	8-729-231-55	TRANSISTOR 2SC2878-AB	
Q206	8-729-900-53	TRANSISTOR DTC114EK	
Q207	8-729-231-55	TRANSISTOR 2SC2878-AB	
Q210	8-729-901-04	TRANSISTOR DTA114EK	
Q211	8-729-900-53	TRANSISTOR DTC114EK	
Q212	8-729-900-53	TRANSISTOR DTC114EK	
Q213	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q214	8-729-901-04	TRANSISTOR DTA114EK	
Q215	8-729-901-04	TRANSISTOR DTA114EK	
Q216	8-729-900-53	TRANSISTOR DTC114EK	
Q217	8-729-901-04	TRANSISTOR DTA114EK	
Q218	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q219	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q400	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q401	8-729-216-22	TRANSISTOR 2SA1162-G	
Q403	8-729-024-95	TRANSISTOR 2SB1565EF	
Q404	8-729-019-01	TRANSISTOR 2SD2394-EF	
Q405	8-729-019-01	TRANSISTOR 2SD2394-EF	
Q406	8-729-024-95	TRANSISTOR 2SB1565EF	
Q407	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q408	8-729-901-04	TRANSISTOR DTA114EK	
Q409	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q410	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q411	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q412	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q500	8-729-900-53	TRANSISTOR DTC114EK	
Q501	8-729-216-22	TRANSISTOR 2SA1162-G	
Q502	8-729-901-04	TRANSISTOR DTA114EK	
Q503	8-729-901-04	TRANSISTOR DTA114EK	
Q504	8-729-901-04	TRANSISTOR DTA114EK	
Q505	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q506	8-729-900-53	TRANSISTOR DTC114EK	
Q507	8-729-900-53	TRANSISTOR DTC114EK	
Q950	8-729-202-38	TRANSISTOR 2SC3326N	
Q951	8-729-901-04	TRANSISTOR DTA114EK	
		< RESISTOR >	
R001	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R002	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R003	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R004	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R005	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R006	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R007	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R008	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R009	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R010	1-208-810-11	METAL GLAZE 15K 0.50% 1/10W	
R011	1-216-095-00	METAL CHIP 82K 5% 1/10W	
R012	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R013	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R014	1-208-810-11	METAL GLAZE 15K 0.50% 1/10W	
R015	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R016	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R017	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R018	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R019	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R020	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R021	1-208-830-11	METAL GLAZE 100K 0.50% 1/10W	
R022	1-208-830-11	METAL GLAZE 100K 0.50% 1/10W	
R023	1-216-113-00	METAL CHIP 470K 5% 1/10W	

Ref. No.	Part No.	Description				Remark
R024	1-208-830-11	METAL GLAZE	100K	0.50%	1/10W	
R025	1-208-830-11	METAL GLAZE	100K	0.50%	1/10W	
R026	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R027	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R028	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R029	1-208-806-11	METAL GLAZE	10K	0.50%	1/10W	
R030	1-208-804-11	METAL GLAZE	8.2K	0.50%	1/10W	
R031	1-208-806-11	METAL GLAZE	10K	0.50%	1/10W	
R032	1-208-800-11	METAL GLAZE	5.6K	0.50%	1/10W	
R033	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R034	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R035	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R036	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R037	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R038	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R039	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R040	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R041	1-208-830-11	METAL GLAZE	100K	0.50%	1/10W	
R042	1-208-830-11	METAL GLAZE	100K	0.50%	1/10W	
R043	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R044	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R045	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R046	1-216-033-00	METAL CHIP	220	5%	1/10W	
R047	1-216-041-00	METAL CHIP	470	5%	1/10W	
R048	1-216-040-00	METAL GLAZE	430	5%	1/10W	
R049	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R050	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R051	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R052	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R053	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R054	1-216-043-00	METAL CHIP	560	5%	1/10W	
R055	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R056	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R057	1-216-041-00	METAL CHIP	470	5%	1/10W	
R058	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R059	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R060	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R061	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R062	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R063	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R064	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R065	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R066	1-216-021-00	METAL CHIP	68	5%	1/10W	
R067	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R068	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R069	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R070	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R071	1-216-113-00	METAL CHIP	470K	5%	1/10W	

Ref. No.	Part No.	Description				Remark
R072	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R073	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R074	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R075	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R076	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R077	1-216-095-00	METAL CHIP	82K	5%	1/10W	
R078	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R079	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R080	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R081	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R082	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	
R083	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R084	1-216-109-00	METAL CHIP	330K	5%	1/10W	
R085	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R086	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R087	1-216-109-00	METAL CHIP	330K	5%	1/10W	
R088	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R089	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R090	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R091	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R092	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	
R093	1-216-075-00	METAL CHIP	12K	5%	1/10W	
R094	1-216-043-00	METAL CHIP	560	5%	1/10W	
R095	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R096	1-216-043-00	METAL CHIP	560	5%	1/10W	
R097	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R098	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R099	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R100	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R101	1-216-009-00	METAL CHIP	22	5%	1/10W	
R102	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R103	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R104	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R105	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R106	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R107	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R108	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R109	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R110	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R111	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R112	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R113	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R114	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R115	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R116	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R117	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R118	1-216-085-00	METAL CHIP	33K	5%	1/10W	
R119	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R120	1-216-047-00	METAL CHIP	820	5%	1/10W	

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Ref. No.	Part No.	Description			Remark
R121	1-216-085-00	METAL CHIP	33K	5%	1/10W
R122	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R123	1-216-037-00	METAL CHIP	330	5%	1/10W
R124	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R125	1-216-295-00	METAL CHIP	0	5%	1/10W
R126	1-216-081-00	METAL CHIP	22K	5%	1/10W
R127	1-216-033-00	METAL CHIP	220	5%	1/10W
R128	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R129	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R130	1-208-782-11	METAL GLAZE	1K	0.50%	1/10W
R131	1-208-781-11	METAL GLAZE	910	0.50%	1/10W
R132	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R133	1-216-081-00	METAL CHIP	22K	5%	1/10W
R134	1-216-081-00	METAL CHIP	22K	5%	1/10W
R137	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R138	1-216-039-00	METAL CHIP	390	5%	1/10W
R139	1-216-091-00	METAL CHIP	56K	5%	1/10W
R140	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R141	1-216-041-00	METAL CHIP	470	5%	1/10W
R142	1-216-043-00	METAL CHIP	560	5%	1/10W
R143	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R144	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R145	1-216-049-00	METAL CHIP	1K	5%	1/10W
R146	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R147	1-216-045-00	METAL CHIP	680	5%	1/10W
R148	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R149	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R150	1-216-095-00	METAL CHIP	82K	5%	1/10W
R151	1-216-045-00	METAL CHIP	680	5%	1/10W
R152	1-216-033-00	METAL CHIP	220	5%	1/10W
R153	1-216-081-00	METAL CHIP	22K	5%	1/10W
R154	1-216-081-00	METAL CHIP	22K	5%	1/10W
R155	1-216-049-00	METAL CHIP	1K	5%	1/10W
R156	1-216-295-00	METAL CHIP	0	5%	1/10W
R157	1-216-295-00	METAL CHIP	0	5%	1/10W
R158	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R159	1-216-117-00	METAL CHIP	680K	5%	1/10W
R160	1-216-041-00	METAL CHIP	470	5%	1/10W
R161	1-216-295-00	METAL CHIP	0	5%	1/10W
R162	1-216-033-00	METAL CHIP	220	5%	1/10W
R163	1-216-097-00	METAL CHIP	100K	5%	1/10W
R164	1-216-049-00	METAL CHIP	1K	5%	1/10W
R165	1-216-295-00	METAL CHIP	0	5%	1/10W
R166	1-216-049-00	METAL CHIP	1K	5%	1/10W
R167	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R169	1-216-049-00	METAL CHIP	1K	5%	1/10W
R170	1-216-115-00	METAL CHIP	560K	5%	1/10W
R174	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R175	1-216-021-00	METAL CHIP	68	5%	1/10W

Ref. No.	Part No.	Description			Remark
R179	1-216-031-00	METAL CHIP	180	5%	1/10W
R182	1-216-021-00	METAL CHIP	68	5%	1/10W
R189	1-216-041-00	METAL CHIP	470	5%	1/10W
R190	1-216-041-00	METAL CHIP	470	5%	1/10W
R191	1-216-041-00	METAL CHIP	470	5%	1/10W
R192	1-216-041-00	METAL CHIP	470	5%	1/10W
R193	1-216-081-00	METAL CHIP	22K	5%	1/10W
R194	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R197	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R199	1-216-095-00	METAL CHIP	82K	5%	1/10W
R200	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R201	1-216-073-00	METAL CHIP	10K	5%	1/10W
R202	1-216-049-00	METAL CHIP	1K	5%	1/10W
R203	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R204	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R205	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R206	1-216-676-11	METAL CHIP	11K	0.5%	1/10W
R207	1-216-672-11	METAL CHIP	7.5K	0.5%	1/10W
R208	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R209	1-216-649-11	METAL CHIP	820	0.5%	1/10W
R210	1-216-049-00	METAL CHIP	1K	5%	1/10W
R211	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R212	1-218-760-11	METAL GLAZE	220K	2%	1/10W
R213	1-216-657-11	METAL CHIP	1.8K	0.5%	1/10W
R214	1-216-676-11	METAL CHIP	11K	0.5%	1/10W
R215	1-216-672-11	METAL CHIP	7.5K	0.5%	1/10W
R216	1-216-073-00	METAL CHIP	10K	5%	1/10W
R217	1-216-685-11	METAL CHIP	27K	0.5%	1/10W
R218	1-216-685-11	METAL CHIP	27K	0.5%	1/10W
R219	1-216-041-00	METAL CHIP	470	5%	1/10W
R220	1-216-295-00	METAL CHIP	0	5%	1/10W
R225	1-216-095-00	METAL CHIP	82K	5%	1/10W
R226	1-216-657-11	METAL CHIP	1.8K	0.5%	1/10W
R227	1-216-049-00	METAL CHIP	1K	5%	1/10W
R231	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R234	1-218-760-11	METAL GLAZE	220K	2%	1/10W
R235	1-216-049-00	METAL CHIP	1K	5%	1/10W
R236	1-216-295-00	METAL CHIP	0	5%	1/10W
R237	1-216-295-00	METAL CHIP	0	5%	1/10W
R238	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R239	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R240	1-216-649-11	METAL CHIP	820	0.5%	1/10W
R241	1-218-760-11	METAL GLAZE	220K	2%	1/10W
R242	1-216-685-11	METAL CHIP	27K	0.5%	1/10W
R243	1-216-295-00	METAL CHIP	0	5%	1/10W
R244	1-218-760-11	METAL GLAZE	220K	2%	1/10W
R245	1-218-760-11	METAL GLAZE	220K	2%	1/10W
R247	1-216-073-00	METAL CHIP	10K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R248	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R251	1-216-657-11	METAL CHIP	1.8K	0.5%	1/10W
R252	1-218-760-11	METAL GLAZE	220K	2%	1/10W
R253	1-216-295-00	METAL CHIP	0	5%	1/10W
R255	1-218-760-11	METAL GLAZE	220K	2%	1/10W
R256	1-218-760-11	METAL GLAZE	220K	2%	1/10W
R257	1-216-295-00	METAL CHIP	0	5%	1/10W
R258	1-216-295-00	METAL CHIP	0	5%	1/10W
R263	1-216-657-11	METAL CHIP	1.8K	0.5%	1/10W
R264	1-216-295-00	METAL CHIP	0	5%	1/10W
R266	1-216-676-11	METAL CHIP	11K	0.5%	1/10W
R267	1-216-672-11	METAL CHIP	7.5K	0.5%	1/10W
R268	1-216-685-11	METAL CHIP	27K	0.5%	1/10W
R269	1-218-760-11	METAL GLAZE	220K	2%	1/10W
R271	1-218-760-11	METAL GLAZE	220K	2%	1/10W
R274	1-216-074-00	METAL CHIP	11K	5%	1/10W
R275	1-216-097-00	METAL CHIP	100K	5%	1/10W
R276	1-216-676-11	METAL CHIP	11K	0.5%	1/10W
R277	1-216-672-11	METAL CHIP	7.5K	0.5%	1/10W
R278	1-216-121-00	METAL CHIP	1M	5%	1/10W
R279	1-216-095-00	METAL CHIP	82K	5%	1/10W
R282	1-216-049-00	METAL CHIP	1K	5%	1/10W
R283	1-216-121-00	METAL CHIP	1M	5%	1/10W
R284	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R285	1-216-049-00	METAL CHIP	1K	5%	1/10W
R286	1-208-838-11	METAL GLAZE	220K	0.50%	1/10W
R287	1-208-798-11	METAL GLAZE	4.7K	0.50%	1/10W
R288	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R289	1-208-829-11	METAL GLAZE	91K	0.50%	1/10W
R290	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R291	1-208-824-11	METAL GLAZE	56K	0.50%	1/10W
R292	1-216-097-00	METAL CHIP	100K	5%	1/10W
R293	1-216-097-00	METAL CHIP	100K	5%	1/10W
R295	1-216-073-00	METAL CHIP	10K	5%	1/10W
R297	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R298	1-216-073-00	METAL CHIP	10K	5%	1/10W
R299	1-216-097-00	METAL CHIP	100K	5%	1/10W
R300	1-208-824-11	METAL GLAZE	56K	0.50%	1/10W
R301	1-216-295-00	METAL CHIP	0	5%	1/10W
R302	1-216-077-00	METAL CHIP	15K	5%	1/10W
R303	1-216-097-00	METAL CHIP	100K	5%	1/10W
R304	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R305	1-208-824-11	METAL GLAZE	56K	0.50%	1/10W
R306	1-208-824-11	METAL GLAZE	56K	0.50%	1/10W
R307	1-208-837-11	METAL GLAZE	200K	0.50%	1/10W
R308	1-216-073-00	METAL CHIP	10K	5%	1/10W
R309	1-216-073-00	METAL CHIP	10K	5%	1/10W
R310	1-216-073-00	METAL CHIP	10K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R311	1-216-097-00	METAL CHIP	100K	5%	1/10W
R312	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R314	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R315	1-216-095-00	METAL CHIP	82K	5%	1/10W
R317	1-216-073-00	METAL CHIP	10K	5%	1/10W
R318	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R319	1-216-101-00	METAL CHIP	150K	5%	1/10W
R320	1-216-101-00	METAL CHIP	150K	5%	1/10W
R321	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R322	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R323	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R324	1-216-077-00	METAL CHIP	15K	5%	1/10W
R325	1-216-104-00	METAL CHIP	200K	5%	1/10W
R326	1-216-017-00	METAL CHIP	47	5%	1/10W
R327	1-216-049-00	METAL CHIP	1K	5%	1/10W
R328	1-216-049-00	METAL CHIP	1K	5%	1/10W
R329	1-216-049-00	METAL CHIP	1K	5%	1/10W
R330	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R331	1-216-041-00	METAL CHIP	470	5%	1/10W
R332	1-216-023-00	METAL CHIP	82	5%	1/10W
R333	1-216-077-00	METAL CHIP	15K	5%	1/10W
R334	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R335	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R336	1-216-073-00	METAL CHIP	10K	5%	1/10W
R340	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R341	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R400	1-216-097-00	METAL CHIP	100K	5%	1/10W
R401	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R402	1-216-045-00	METAL CHIP	680	5%	1/10W
R403	1-216-045-00	METAL CHIP	680	5%	1/10W
R404	1-216-093-00	METAL CHIP	68K	5%	1/10W
R405	1-216-107-00	METAL CHIP	270K	5%	1/10W
R406	1-216-099-00	METAL CHIP	120K	5%	1/10W
R407	1-216-075-00	METAL CHIP	12K	5%	1/10W
R408	1-216-083-00	METAL CHIP	27K	5%	1/10W
R409	1-216-049-00	METAL CHIP	1K	5%	1/10W
R410	1-216-101-00	METAL CHIP	150K	5%	1/10W
R411	1-216-077-00	METAL CHIP	15K	5%	1/10W
R412	1-216-101-00	METAL CHIP	150K	5%	1/10W
R413	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R414	1-216-075-00	METAL CHIP	12K	5%	1/10W
R415	1-216-085-00	METAL CHIP	33K	5%	1/10W
R416	1-216-103-91	METAL GLAZE	180K	5%	1/10W
R417	1-216-097-00	METAL CHIP	100K	5%	1/10W
R418	1-216-091-00	METAL CHIP	56K	5%	1/10W
R419	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R420	1-216-085-00	METAL CHIP	33K	5%	1/10W
R421	1-216-097-00	METAL CHIP	100K	5%	1/10W
R422	1-216-109-00	METAL CHIP	330K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R423	1-216-101-00	METAL CHIP	150K	5%	1/10W
R424	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R425	1-216-083-00	METAL GLAZE	27K	5%	1/10W
R426	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R427	1-216-099-00	METAL CHIP	120K	5%	1/10W
R428	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R429	1-216-093-00	METAL CHIP	68K	5%	1/10W
R431	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R432	1-216-082-00	METAL GLAZE	24K	5%	1/10W
R433	1-216-100-00	METAL GLAZE	130K	5%	1/10W
R434	1-216-097-00	METAL CHIP	100K	5%	1/10W
R435	1-216-073-00	METAL CHIP	10K	5%	1/10W
R436	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R437	1-216-077-00	METAL CHIP	15K	5%	1/10W
R438	1-216-085-00	METAL CHIP	33K	5%	1/10W
R439	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R440	1-216-049-00	METAL CHIP	1K	5%	1/10W
R441	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R442	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R443	1-216-085-00	METAL CHIP	33K	5%	1/10W
R444	1-216-033-00	METAL CHIP	220	5%	1/10W
R445	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R446	1-216-081-00	METAL CHIP	22K	5%	1/10W
R447	1-216-081-00	METAL CHIP	22K	5%	1/10W
R448	1-216-091-00	METAL GLAZE	56K	5%	1/10W
R449	1-216-113-00	METAL CHIP	470K	5%	1/10W
R450	1-216-073-00	METAL CHIP	10K	5%	1/10W
R451	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R452	1-216-073-00	METAL CHIP	10K	5%	1/10W
R453	1-216-085-00	METAL CHIP	33K	5%	1/10W
R454	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R455	1-216-097-00	METAL CHIP	100K	5%	1/10W
R456	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R457	1-216-073-00	METAL CHIP	10K	5%	1/10W
R458	1-216-073-00	METAL CHIP	10K	5%	1/10W
R459	1-216-049-00	METAL CHIP	1K	5%	1/10W
R460	1-216-075-00	METAL CHIP	12K	5%	1/10W
R461	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R462	1-216-085-00	METAL CHIP	33K	5%	1/10W
R463	1-216-077-00	METAL CHIP	15K	5%	1/10W
R464	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R465	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R466	1-216-081-00	METAL CHIP	22K	5%	1/10W
R467	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R468	1-216-081-00	METAL CHIP	22K	5%	1/10W
R469	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R470	1-216-075-00	METAL CHIP	12K	5%	1/10W
R471	1-216-071-00	METAL CHIP	8.2K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R472	1-216-017-00	METAL CHIP	47	5%	1/10W
R473	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R474	1-216-003-11	METAL GLAZE	12	5%	1/10W
R475	1-216-081-00	METAL CHIP	22K	5%	1/10W
R476	1-216-146-00	METAL GLAZE	6.8	5%	1/8W
R477	1-216-079-00	METAL CHIP	18K	5%	1/10W
R478	1-216-109-00	METAL CHIP	330K	5%	1/10W
R479	1-216-093-00	METAL CHIP	68K	5%	1/10W
R480	1-216-095-00	METAL CHIP	82K	5%	1/10W
R481	1-216-369-00	METAL OXIDE	1	5%	2W F
R482	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R483	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R484	1-216-033-00	METAL CHIP	220	5%	1/10W
R485	1-216-041-00	METAL CHIP	470	5%	1/10W
R486	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R487	1-216-039-00	METAL CHIP	390	5%	1/10W
R488	1-216-047-00	METAL CHIP	820	5%	1/10W
R489	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R490	1-216-037-00	METAL CHIP	330	5%	1/10W
R491	1-216-146-00	METAL GLAZE	6.8	5%	1/8W
R492	1-216-073-00	METAL CHIP	10K	5%	1/10W
R493	1-216-095-00	METAL CHIP	82K	5%	1/10W
R494	1-216-079-00	METAL CHIP	18K	5%	1/10W
R495	1-216-079-00	METAL CHIP	18K	5%	1/10W
R496	1-216-099-00	METAL CHIP	120K	5%	1/10W
R497	1-216-099-00	METAL CHIP	120K	5%	1/10W
R498	1-216-077-00	METAL CHIP	15K	5%	1/10W
R499	1-216-099-00	METAL CHIP	120K	5%	1/10W
R500	1-216-073-00	METAL CHIP	10K	5%	1/10W
R501	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R502	1-216-111-00	METAL CHIP	390K	5%	1/10W
R503	1-216-113-00	METAL CHIP	470K	5%	1/10W
R504	1-208-808-11	METAL GLAZE	12K	0.50%	1/10W
R505	1-216-035-00	METAL CHIP	270	5%	1/10W
R506	1-208-810-11	METAL GLAZE	15K	0.50%	1/10W
R507	1-208-844-11	METAL GLAZE	390K	0.50%	1/10W
R508	1-216-049-00	METAL CHIP	1K	5%	1/10W
R509	1-208-816-11	METAL GLAZE	27K	0.50%	1/10W
R510	1-208-838-11	METAL GLAZE	220K	0.50%	1/10W
R511	1-208-806-11	METAL GLAZE	10K	0.50%	1/10W
R512	1-208-818-11	METAL GLAZE	33K	0.50%	1/10W
R513	1-208-830-11	METAL GLAZE	100K	0.50%	1/10W
R514	1-216-077-00	METAL CHIP	15K	5%	1/10W
R515	1-208-818-11	METAL GLAZE	33K	0.50%	1/10W
R516	1-216-085-00	METAL CHIP	33K	5%	1/10W
R517	1-216-105-00	METAL CHIP	220K	5%	1/10W
R518	1-216-081-00	METAL CHIP	22K	5%	1/10W
R520	1-216-073-00	METAL CHIP	10K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R521	1-216-045-00	METAL CHIP	680	5%	1/10W
R522	1-216-105-00	METAL CHIP	220K	5%	1/10W
R523	1-216-033-00	METAL CHIP	220	5%	1/10W
R524	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R525	1-216-073-00	METAL CHIP	10K	5%	1/10W
R526	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R527	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R528	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R529	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R530	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R531	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R532	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
⚠R533	1-212-950-00	FUSIBLE	4.7	5%	1/2W F
R534	1-216-105-00	METAL CHIP	220K	5%	1/10W
R535	1-216-093-00	METAL CHIP	68K	5%	1/10W
R536	1-216-095-00	METAL CHIP	82K	5%	1/10W
R537	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R538	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R539	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R540	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R541	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R542	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R545	1-216-049-00	METAL CHIP	1K	5%	1/10W
R546	1-216-049-00	METAL CHIP	1K	5%	1/10W
R547	1-216-049-00	METAL CHIP	1K	5%	1/10W
R548	1-216-073-00	METAL CHIP	10K	5%	1/10W
R549	1-216-105-00	METAL CHIP	220K	5%	1/10W
R550	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R552	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R553	1-216-029-00	METAL CHIP	150	5%	1/10W
R554	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R556	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R557	1-216-081-00	METAL CHIP	22K	5%	1/10W
R558	1-216-021-00	METAL CHIP	68	5%	1/10W
R559	1-216-097-00	METAL CHIP	100K	5%	1/10W
R560	1-216-049-00	METAL CHIP	1K	5%	1/10W
R561	1-216-049-00	METAL CHIP	1K	5%	1/10W
R562	1-216-049-00	METAL CHIP	1K	5%	1/10W
R563	1-216-049-00	METAL CHIP	1K	5%	1/10W
R564	1-216-049-00	METAL CHIP	1K	5%	1/10W
R565	1-216-121-00	METAL CHIP	1M	5%	1/10W
R566	1-216-049-00	METAL CHIP	1K	5%	1/10W
R568	1-216-049-00	METAL CHIP	1K	5%	1/10W
R569	1-216-049-00	METAL CHIP	1K	5%	1/10W
R570	1-216-049-00	METAL CHIP	1K	5%	1/10W
R571	1-216-049-00	METAL CHIP	1K	5%	1/10W
R572	1-216-049-00	METAL CHIP	1K	5%	1/10W
R573	1-216-049-00	METAL CHIP	1K	5%	1/10W
R574	1-216-049-00	METAL CHIP	1K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R575	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R576	1-216-049-00	METAL CHIP	1K	5%	1/10W
R577	1-216-049-00	METAL CHIP	1K	5%	1/10W
R578	1-216-049-00	METAL CHIP	1K	5%	1/10W
R579	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R580	1-216-049-00	METAL CHIP	1K	5%	1/10W
R581	1-216-049-00	METAL CHIP	1K	5%	1/10W
R582	1-216-049-00	METAL CHIP	1K	5%	1/10W
R583	1-216-049-00	METAL CHIP	1K	5%	1/10W
R584	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R585	1-216-049-00	METAL CHIP	1K	5%	1/10W
R586	1-216-049-00	METAL CHIP	1K	5%	1/10W
R587	1-216-049-00	METAL CHIP	1K	5%	1/10W
R588	1-216-049-00	METAL CHIP	1K	5%	1/10W
R589	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R590	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R591	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R592	1-216-049-00	METAL CHIP	1K	5%	1/10W
R593	1-208-795-11	METAL GLAZE	3.6K	0.50%	1/10W
R594	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R595	1-216-049-00	METAL CHIP	1K	5%	1/10W
R597	1-216-049-00	METAL CHIP	1K	5%	1/10W
R598	1-216-295-00	METAL CHIP	0	5%	1/10W
R604	1-216-049-00	METAL CHIP	1K	5%	1/10W
R605	1-216-295-00	METAL CHIP	0	5%	1/10W
R606	1-216-037-00	METAL CHIP	330	5%	1/10W
R608	1-216-049-00	METAL CHIP	1K	5%	1/10W
R609	1-216-049-00	METAL CHIP	1K	5%	1/10W
R610	1-216-049-00	METAL CHIP	1K	5%	1/10W
R611	1-216-049-00	METAL CHIP	1K	5%	1/10W
R612	1-216-295-00	METAL CHIP	0	5%	1/10W
R613	1-216-049-00	METAL CHIP	1K	5%	1/10W
R614	1-216-049-00	METAL CHIP	1K	5%	1/10W
R615	1-216-049-00	METAL CHIP	1K	5%	1/10W
R616	1-216-049-00	METAL CHIP	1K	5%	1/10W
R617	1-216-049-00	METAL CHIP	1K	5%	1/10W
R618	1-216-049-00	METAL CHIP	1K	5%	1/10W
R619	1-216-073-00	METAL CHIP	10K	5%	1/10W
R620	1-216-049-00	METAL CHIP	1K	5%	1/10W
R621	1-216-049-00	METAL CHIP	1K	5%	1/10W
R622	1-216-049-00	METAL CHIP	1K	5%	1/10W
R623	1-216-049-00	METAL CHIP	1K	5%	1/10W
R624	1-216-049-00	METAL CHIP	1K	5%	1/10W
R625	1-216-049-00	METAL CHIP	1K	5%	1/10W
R626	1-216-073-00	METAL CHIP	10K	5%	1/10W
R628	1-216-041-00	METAL CHIP	470	5%	1/10W
R630	1-216-049-00	METAL CHIP	1K	5%	1/10W
R632	1-216-049-00	METAL CHIP	1K	5%	1/10W

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remark
R633	1-216-097-00	METAL CHIP	100K	5%	1/10W
R634	1-216-073-00	METAL CHIP	10K	5%	1/10W
R635	1-216-049-00	METAL CHIP	1K	5%	1/10W
R636	1-216-049-00	METAL CHIP	1K	5%	1/10W
R637	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R638	1-216-081-00	METAL CHIP	22K	5%	1/10W
R639	1-216-081-00	METAL CHIP	22K	5%	1/10W
R642	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R643	1-216-049-00	METAL CHIP	1K	5%	1/10W
R644	1-216-295-00	METAL CHIP	0	5%	1/10W
R645	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R646	1-216-073-00	METAL CHIP	10K	5%	1/10W
R647	1-216-073-00	METAL CHIP	10K	5%	1/10W
R648	1-216-073-00	METAL CHIP	10K	5%	1/10W
R649	1-216-025-00	METAL CHIP	100	5%	1/10W
R650	1-216-101-00	METAL CHIP	150K	5%	1/10W
R651	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R801	1-216-105-00	METAL CHIP	220K	5%	1/10W
R802	1-216-105-00	METAL CHIP	220K	5%	1/10W
R803	1-216-295-00	METAL CHIP	0	5%	1/10W
R804	1-216-097-00	METAL CHIP	100K	5%	1/10W
R805	1-216-117-00	METAL CHIP	680K	5%	1/10W
R806	1-216-085-00	METAL CHIP	33K	5%	1/10W
R807	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R808	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R809	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R810	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R812	1-216-295-00	METAL CHIP	0	5%	1/10W
R813	1-216-295-00	METAL CHIP	0	5%	1/10W
R814	1-216-295-00	METAL CHIP	0	5%	1/10W
R815	1-216-109-00	METAL CHIP	330K	5%	1/10W
R816	1-216-043-00	METAL CHIP	560	5%	1/10W
R850	1-216-077-00	METAL CHIP	15K	5%	1/10W
R900	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R901	1-208-806-11	METAL GLAZE	10K	0.50%	1/10W
R902	1-208-808-11	METAL GLAZE	12K	0.50%	1/10W
R903	1-216-021-00	METAL CHIP	68	5%	1/10W
R904	1-216-021-00	METAL CHIP	68	5%	1/10W
R905	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R906	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R907	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R912	1-216-095-00	METAL CHIP	82K	5%	1/10W
R913	1-216-083-00	METAL CHIP	27K	5%	1/10W
R914	1-216-049-00	METAL CHIP	1K	5%	1/10W
R915	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R916	1-216-077-00	METAL CHIP	15K	5%	1/10W
R917	1-216-047-00	METAL CHIP	820	5%	1/10W
R918	1-216-045-00	METAL CHIP	680	5%	1/10W

Ref. No.	Part No.	Description			Remark
R950	1-216-049-00	METAL CHIP	1K	5%	1/10W
R951	1-216-097-00	METAL CHIP	100K	5%	1/10W
		< VARIABLE RESISTOR >			
RV001	1-223-239-11	RES, ADJ, CARBON 10K			
RV002	1-223-239-11	RES, ADJ, CARBON 10K			
RV401	1-223-241-11	RES, ADJ, CARBON 47K			
RV402	1-223-241-11	RES, ADJ, CARBON 47K			
RV501	1-223-240-11	RES, ADJ, CARBON 22K			
		< THERMISTOR >			
TH001	1-800-199-00	THERMISTOR			
		< VIBRATOR >			
X201	1-567-908-11	VIBRATOR, CRYSTAL (16.9344MHz)			
X501	1-567-900-11	OSCILLATOR, CRYSTAL (14.31818MHz)			
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	A-6421-956-A	MD-703 BOARD, COMPLETE			
		**********			
		(Ref. No 2,000Series)			
	3-953-262-01	HOLDER, LED			
		< CAPACITOR >			
C431	1-126-947-11	ELECT	47uF	20%	35V
		< CONNECTOR >			
* CN431	1-764-595-21	CONNECTOR, FPC 14P			
CN432	1-506-470-11	PIN, CONNECTOR 5P			
CN433	1-564-014-11	PIN, CONNECTOR 4P			
CN434	1-506-468-11	PIN, CONNECTOR 3P			
		< DIODE >			
D431	8-719-912-39	LED SLR932A			
D432	8-729-020-74	DIODE GP1S24			
D433	8-729-020-74	DIODE GP1S24			
D434	8-729-020-74	DIODE GP1S24			
		< IC >			
IC431	8-759-927-46	IC SN74HC00ANS (DETECTOR CONTROL)			
		< JUMPER RESISTOR >			
JR413	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR414	1-216-295-00	METAL CHIP	0	5%	1/10W
JR431	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR432	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR433	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR435	1-216-296-91	METAL GLAZE	0	5%	1/8W

Ref. No.	Part No.	Description			Remark
JR437	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR438	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR439	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR440	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR441	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR442	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR443	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR444	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR445	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR446	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR447	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR448	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR449	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR450	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR451	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR452	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR453	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR454	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR455	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR456	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR457	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR458	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR460	1-216-296-91	METAL GLAZE	0	5%	1/8W
JR461	1-216-296-91	METAL GLAZE	0	5%	1/8W
		< RESISTOR >			
R431	1-216-033-00	METAL CHIP	220	5%	1/10W
R432	1-216-049-00	METAL CHIP	1K	5%	1/10W
R433	1-216-049-00	METAL CHIP	1K	5%	1/10W
R434	1-216-045-00	METAL CHIP	680	5%	1/10W
R435	1-216-099-00	METAL CHIP	120K	5%	1/10W
R436	1-216-039-00	METAL CHIP	390	5%	1/10W
R437	1-216-099-00	METAL CHIP	120K	5%	1/10W
R438	1-216-095-00	METAL CHIP	82K	5%	1/10W
R439	1-216-095-00	METAL CHIP	82K	5%	1/10W
		< SWITCH >			
S431	1-692-440-11	SWITCH, PUSH (TILT)			

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A-6421-953-A MT-702 BOARD, COMPLETE

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(Ref. No 4, 000Series)

< CAPACITOR >

C471	1-161-063-00	CERAMIC	0.1uF	10%	50V

< CONNECTOR >

* CN471	1-695-105-11	PIN, CONNECTOR (PC BOARD) 3P BOARD			

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Ref. No.	Part No.	Description			Remark
*	A-6426-621-A	PE-703 BOARD, COMPLETE			

****

(Ref. No 7, 000Series)

< CONNECTOR >

CN301	1-506-483-21	PIN, CONNECTOR 4P			
CNJ301	1-573-034-11	CONNECTOR, MULTIPLE (SMALL TYPE)			
		< DIODE >			
D301	8-719-105-92	DIODE RD5.6M-B3			
D302	8-719-105-92	DIODE RD5.6M-B3			
D303	8-719-105-92	DIODE RD5.6M-B3			
D304	8-719-105-92	DIODE RD5.6M-B3			
		< COIL >			
L301	1-410-393-11	INDUCTOR CHIP 100uH			
		< RESISTOR >			
R301	1-216-295-00	METAL CHIP	0	5%	1/10W
R302	1-216-295-00	METAL CHIP	0	5%	1/10W
R303	1-216-295-00	METAL CHIP	0	5%	1/10W

****

*	A-6423-161-A	PS-716 BOARD, COMPLETE			

****

(Ref. No 6, 000Series)

⚠	1-533-223-11	HOLDER, FUSE			
		< CAPACITOR >			
C031	1-126-948-11	ELECT	100uF	20%	35V
C032	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C033	1-126-948-11	ELECT	100uF	20%	35V
C034	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C035	1-126-941-11	ELECT	470uF	20%	25V
C036	1-126-944-11	ELECT	3300uF	20%	25V
C037	1-126-946-11	ELECT	6800uF	20%	25V
C038	1-126-944-11	ELECT	3300uF	20%	25V
C046	1-124-557-11	ELECT	1000uF	20%	25V
C051	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C052	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C054	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C055	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C056	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
C058	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C059	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C060	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
C061	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C062	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C063	1-124-122-11	ELECT	100uF	20%	50V

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

PS-716

Ref. No.	Part No.	Description			Remark
C064	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C701	1-126-916-11	ELECT	1000uF	20%	6.3V
C702	1-126-916-11	ELECT	1000uF	20%	6.3V
C703	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C704	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C706	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C707	1-126-964-11	ELECT	10uF	20%	50V
C708	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C709	1-163-139-00	CERAMIC CHIP	820PF	5%	50V
C710	1-124-927-11	ELECT	4.7uF	20%	100V
C711	1-126-916-11	ELECT	1000uF	20%	6.3V
C712	1-126-916-11	ELECT	1000uF	20%	6.3V
C713	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C714	1-126-966-11	ELECT	33uF	20%	16V
C718	1-126-948-11	ELECT	100uF	20%	35V
		< CONNECTOR >			
* CN030	1-564-029-00	PIN, CONNECTOR 4P			
* CN031	1-506-483-21	PIN, CONNECTOR 4P			
* CN051	1-506-487-11	PIN, CONNECTOR 8P			
CN052	1-564-506-11	PLUG, CONNECTOR 3P			
* CN055	1-506-485-11	PIN, CONNECTOR 6P			
		< DIODE >			
⚠D031	8-719-200-82	DIODE	11ES2		
⚠D032	8-719-200-82	DIODE	11ES2		
D033	8-719-911-19	DIODE	1SS119		
⚠D034	8-719-025-17	DIODE	D3SBA10-4100		
⚠D035	8-719-200-82	DIODE	11ES2		
D051	8-719-980-78	DIODE	ERA81-006		
D052	8-719-980-78	DIODE	ERA81-006		
D053	8-719-200-82	DIODE	11ES2		
D054	8-719-200-82	DIODE	11ES2		
D055	8-719-911-19	DIODE	1SS119		
D056	8-719-911-19	DIODE	1SS119		
D057	8-719-911-19	DIODE	1SS119		
D058	8-719-109-85	DIODE	RD5.1ES-B2		
D059	8-719-109-75	DIODE	RD4.3ES-B2		
D060	8-719-911-19	DIODE	1SS119		
⚠D061	8-719-503-40	DIODE	S3V40		
D701	8-719-980-78	DIODE	ERA81-006		
D702	8-719-980-78	DIODE	ERA81-006		
		< FUSE >			
⚠F031	1-532-747-11	FUSE, GLASS TUBE	5A 125V		
⚠F032	1-532-747-11	FUSE, GLASS TUBE	5A 125V		
⚠F053	1-532-780-21	FUSE, MICRO (2.5A 125V)			
⚠F054	1-532-780-21	FUSE, MICRO (2.5A 125V)			

Ref. No.	Part No.	Description			Remark
		< IC >			
⚠IC031	8-759-231-53	IC	M5F7805 (+5V REG)		
IC051	8-759-509-91	IC	XRA10393F (PWM CONVERSIOS)		
IC052	8-759-100-96	IC	uPC4558G2 (PWM AMP)		
⚠IC701	8-759-946-09	IC	FA7611M (REG)		
		< COIL >			
L051	1-424-219-11	COIL, CHOKE 300uH			
L701	1-424-219-11	COIL, CHOKE 300uH			
L702	1-412-525-21	INDUCTOR 10uH			
L703	1-412-537-31	INDUCTOR 100uH			
L704	1-424-219-11	COIL, CHOKE 300uH			
L705	1-412-525-21	INDUCTOR 10uH			
		< IC LINK >			
⚠PS051	1-532-984-11	LINK, IC			
⚠PS052	1-532-984-11	LINK, IC			
		< TRANSISTOR >			
Q031	8-729-141-75	TRANSISTOR	2SD596DV345		
⚠Q051	8-729-117-11	TRANSISTOR	2SB1151		
⚠Q052	8-729-019-31	TRANSISTOR	2SC4596E		
⚠Q053	8-729-117-11	TRANSISTOR	2SB1151		
⚠Q054	8-729-019-31	TRANSISTOR	2SC4596E		
Q055	8-729-119-78	TRANSISTOR	2SC2785-HFE		
Q056	8-729-216-22	TRANSISTOR	2SA1162-G		
Q058	8-729-230-49	TRANSISTOR	2SC2712-YG		
Q059	8-729-216-22	TRANSISTOR	2SA1162-G		
Q060	8-729-230-49	TRANSISTOR	2SC2712-YG		
Q061	8-729-119-76	TRANSISTOR	2SA1175-HFE		
⚠Q701	8-729-925-37	TRANSISTOR	2SB891		
⚠Q702	8-729-925-37	TRANSISTOR	2SB891		
		< RESISTOR >			
⚠R031	1-212-867-00	FUSIBLE	27	5%	1/4W F
R032	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
⚠R033	1-216-426-11	METAL OXIDE	82	5%	1W F
R034	1-216-049-00	METAL CHIP	1K	5%	1/10W
R035	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R051	1-216-081-00	METAL CHIP	22K	5%	1/10W
R052	1-216-075-00	METAL CHIP	12K	5%	1/10W
R053	1-216-093-00	METAL CHIP	68K	5%	1/10W
R054	1-216-081-00	METAL CHIP	22K	5%	1/10W
R055	1-216-091-00	METAL CHIP	56K	5%	1/10W
R056	1-216-097-00	METAL CHIP	100K	5%	1/10W
R057	1-216-073-00	METAL CHIP	10K	5%	1/10W
R061	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R062	1-216-065-00	METAL CHIP	4.7K	5%	1/10W

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description				Remark
R063	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R064	1-247-750-11	CARBON	680	5%	1/2W	
R065	1-247-750-11	CARBON	680	5%	1/2W	
R066	1-216-049-00	METAL CHIP	1K	5%	1/10W	
⚠R067	1-216-369-00	METAL OXIDE	1	5%	2W	F
R068	1-216-690-11	METAL GLAZE	43K	0.50%	1/10W	
R069	1-216-691-11	METAL GLAZE	47K	0.50%	1/10W	
R070	1-216-690-11	METAL GLAZE	43K	0.50%	1/10W	
R071	1-216-691-11	METAL GLAZE	47K	0.50%	1/10W	
R072	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R073	1-216-073-00	METAL CHIP	10K	5%	1/10W	
⚠R074	1-215-866-11	METAL OXIDE	330	5%	1W	F
R075	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R076	1-247-750-11	CARBON	680	5%	1/2W	
R077	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R078	1-216-093-00	METAL CHIP	68K	5%	1/10W	
R079	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R080	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R701	1-208-790-11	METAL GLAZE	2.2K	0.50%	1/10W	
R702	1-208-814-11	METAL GLAZE	22K	0.50%	1/10W	
R703	1-216-035-00	METAL CHIP	270	5%	1/10W	
R704	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R705	1-216-043-00	METAL CHIP	560	5%	1/10W	
R706	1-216-043-00	METAL CHIP	560	5%	1/10W	
R707	1-208-822-11	METAL GLAZE	47K	0.50%	1/10W	
R708	1-216-109-00	METAL CHIP	330K	5%	1/10W	
R709	1-216-119-00	METAL CHIP	820K	5%	1/10W	
R710	1-216-043-00	METAL CHIP	560	5%	1/10W	
R711	1-208-830-11	METAL GLAZE	100K	0.50%	1/10W	
R712	1-208-814-11	METAL GLAZE	22K	0.50%	1/10W	
R713	1-208-794-11	METAL GLAZE	3.3K	0.50%	1/10W	
R714	1-208-805-11	METAL GLAZE	9.1K	0.50%	1/10W	
R715	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R716	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R717	1-216-029-00	METAL CHIP	150	5%	1/10W	
		< RELAY >				
⚠RY031	1-515-833-11	RELAY				

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* A-6423-157-A PW-713 BOARD, COMPLETE

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(Ref. No 3,000Series)

< CAPACITOR >

C201	1-164-232-11	CERAMIC CHIP	0.01uF		50V	

Ref. No.	Part No.	Description				Remark
		< CONNECTOR >				
CN201	1-506-485-11	PIN, CONNECTOR 6P				
		< DIODE >				
D201	8-719-042-48	DIODE SLR-33DC3F				
D202	8-719-955-04	LED PY5504S-1				
		< IC >				
IC201	8-741-100-48	IC SBX1610-59 (REMOTE CONTROL RECEIVER)				
		< TRANSISTOR >				
Q201	8-729-207-68	TRANSISTOR RN2402				
		< RESISTOR >				
R201	1-216-037-00	METAL CHIP	330	5%	1/10W	
R202	1-216-031-00	METAL CHIP	180	5%	1/10W	
R204	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
R205	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R206	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R207	1-216-081-00	METAL CHIP	22K	5%	1/10W	
		< SWITCH >				
S201	1-572-946-11	SWITCH, TACTIL (SCREW COLOR)				
S202	1-572-946-11	SWITCH, TACTIL (OPEN/CLOSE)				
S203	1-572-946-11	SWITCH, TACTIL (POWER)				
S205	1-572-946-11	SWITCH, TACTIL (REPEAT)				

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* A-6423-159-A RF-705 BOARD, COMPLETE

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(Ref. No 7,000Series)

< CAPACITOR >

C201	1-163-031-11	CERAMIC CHIP	0.01uF		50V	
C202	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C203	1-163-125-00	CERAMIC CHIP	220PF	5%	50V	
C204	1-163-125-00	CERAMIC CHIP	220PF	5%	50V	
		< CONNECTOR >				
CN201	1-506-485-11	PIN, CONNECTOR 6P				
		< FILTER >				
FL201	1-236-163-11	ENCAPSULATED COMPONENT				

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

RF-705 **RS-710** **SW-719** **SW-731**

Ref. No.	Part No.	Description			Remark
		< COIL >			
L201	1-408-409-00	INDUCTOR 10uH			
L202	1-408-398-00	INDUCTOR 1.2uH			
		< RESISTOR >			
R201	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R202	1-216-021-00	METAL CHIP	68	5% 1/10W	
		< RF MODULATOR >			
RF201	1-466-150-11	MODULATOR, RF (RFU-1025)			
**********					
*	A-6426-622-A	RS-710 BOARD, COMPLETE			
		**********			
		(Ref. No 7,000Series)			
		< CONNECTOR >			
CN101	1-506-489-11	PIN, CONNECTOR 10P			
		< JACK >			
CNJ101	1-563-228-11	CONNECTOR, D-SUB 25P (RS-232C)			
		< FERRITE BEAD >			
FB101	1-550-907-21	BEAD, FERRITE (CHIP)			
FB102	1-550-907-21	BEAD, FERRITE (CHIP)			
FB103	1-550-907-21	BEAD, FERRITE (CHIP)			
FB104	1-550-907-21	BEAD, FERRITE (CHIP)			
		< COIL >			
L101	1-410-740-31	INDUCTOR CHIP 0.82uH			
		< RESISTOR >			
R101	1-216-033-00	METAL CHIP	220	5% 1/10W	
R102	1-216-049-00	METAL CHIP	1K	5% 1/10W	
R103	1-216-049-00	METAL CHIP	1K	5% 1/10W	
R104	1-216-033-00	METAL CHIP	220	5% 1/10W	
		< SWITCH >			
S101	1-570-598-11	SWITCH, DIP (BAND RATE)			
**********					

Ref. No.	Part No.	Description			Remark
	A-6421-954-A	SW-719 BOARD, COMPLETE			
		**********			
		(Ref. No 4,000Series)			
		< CONNECTOR >			
* CN481	1-566-779-11	PIN, CONNECTOR (PC BOARD) 4P BOARD			
		< SWITCH >			
S481	1-692-439-11	SWITCH, PUSH (LOAD/CHUCK)			
**********					
*	A-6423-158-A	SW-731 BOARD, COMPLETE			
		**********			
		(Ref. No 3,000Series)			
		< CONNECTOR >			
* CN101	1-564-014-51	PIN, CONNECTOR 4P			
		< DIODE >			
D103	8-719-802-02	LED TLY113AP			
D104	8-719-802-02	LED TLY113AP			
		< RESISTOR >			
R105	1-216-059-00	METAL CHIP	2.7K	5% 1/10W	
R106	1-216-063-00	METAL CHIP	3.9K	5% 1/10W	
R107	1-216-071-00	METAL CHIP	8.2K	5% 1/10W	
R108	1-216-081-00	METAL CHIP	22K	5% 1/10W	
R109	1-216-059-00	METAL CHIP	2.7K	5% 1/10W	
R110	1-216-063-00	METAL CHIP	3.9K	5% 1/10W	
R111	1-216-071-00	METAL CHIP	8.2K	5% 1/10W	
		< SWITCH >			
S101	1-572-946-11	SWITCH, TACTIL (SIDE B)			
S102	1-572-946-11	SWITCH, TACTIL (PLAY)			
S103	1-572-946-11	SWITCH, TACTIL (SIDE A)			
S104	1-572-946-11	SWITCH, TACTIL (PAUSE)			
S105	1-572-946-11	SWITCH, TACTIL (STOP)			
S106	1-572-946-11	SWITCH, TACTIL (STILL/STEP: ◀II)			
S107	1-572-946-11	SWITCH, TACTIL (STILL/STEP: II▶)			
S108	1-572-946-11	SWITCH, TACTIL (SCAN: ◀◀)			
S109	1-572-946-11	SWITCH, TACTIL (SCAN:▶▶)			
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Ref. No.	Part No.	Description			Remark
*	A-6423-155-A	TR-718 (I81) BOARD, COMPLETE			
		**********			
		(Ref. No 5, 000Series)			
⚠	1-533-223-11	HOLDER, FUSE			
		< CAPACITOR >			
⚠C001	1-104-705-11	FILM	0.1uF	20% 250V	
C003	1-164-232-11	CERAMIC CHIP	0.01uF	50V	
C004	1-164-232-11	CERAMIC CHIP	0.01uF	50V	
		< CONNECTOR >			
⚠CN001	1-564-419-11	HEADER, SPRING (POWER) 2P			
		< FUSE >			
⚠F001	1-532-742-11	FUSE, GLASS TUBE 1.6A 125V			
		< RESISTOR >			
⚠R001	1-202-729-00	SOLID	6.8M 10% 1/2W		
		< TRANSFORMER >			
⚠T001	1-423-522-11	TRANSFORMER, POWER			
⚠T002	1-406-884-11	FILTER, LINE			
**********					
		MISCELLANEOUS			
		**********			
* 208	8-848-286-11	DEVICE, OPTICAL KHS-150A (RP)			
211	1-751-083-11	CABLE, FLEXIBLE FLAT (18 CORE)			
220	1-765-530-11	CABLE, FLEXIBLE FLAT (14 CORE)			
⚠CP1	1-765-210-11	CORD, POWER (3 CORE)			
M471	X-3942-963-1	MOTOR ASSY (LOADING)			
M901	1-698-109-11	MOTOR, DD (SPINDLE)			
M903	X-3942-968-1	MOTOR BLOCK ASSY, TILT			
**********					
		ACCESSORIES & PACKING MATERIALS			
		**********			
	1-751-271-11	CORD, CONNECTION			
		(AUDIO/VIDEO CONNECTING CABLE (STEREO) 1.5m)			
	3-758-839-21	INSTRUCTION MANUAL (ENGLISH, FRENCH)			
*	3-795-581-21	SAFEGUARD (SONY), IMPORTANT			
*	3-958-961-01	INDIVIDUAL CARTON			
*	3-959-867-01	CUSHION (UPPER)			
*	3-959-868-01	CUSHION (LOWER)			
**********					

Ref. No.	Part No.	Description	Remark
		**********	
		HARDWARE LIST	
		**********	
#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#2	7-671-155-01	STEEL BALL 3.0	
#3	7-624-105-04	STOP RING 2.3, TYPE -E	
#4	7-685-144-11	SCREW +P 3X5 TYPE2 NON-SLIT	
#6	7-682-645-01	SCREW +PS 3X4	
#7	7-685-647-79	SCREW +BVTP 3X10 TYPE2	
#8	7-627-553-48	SCREW, PRECISION +P 2X4	
#9	7-628-253-05	SCREW +PS 2X4	
#10	7-621-759-35	+PSW, 2.6X5	
#11	7-684-220-02	NUT 3, HEXAGON CAP	
#12	7-624-190-81	STOP RING 2, TYPE-CS	
#13	7-682-946-09	SCREW +PSW 3X5	
#14	7-621-759-65	+PSW, 2.6X8	
#15	7-685-661-14	SCREW +BVTP 4X12 TYPE2 IT-3	
#16	7-624-102-04	STOP RING 1.5, TYPE -E	
#17	7-685-133-19	SCREW +P 2.6X6 TYPE2	
#18	7-685-646-81	SCREW +BVTP 3X8 TYPE2	
#19	7-685-158-19	SCREW +P 4X6 TYPE2 NON-SLIT	
#20	7-685-103-19	SCREW +P 2X5 TYPE2 SLIT	
#21	7-685-648-79	SCREW +BVTP 3X12 TYPE2	
#22	7-688-003-11	W 3, MIDDLE	
#23	7-623-210-22	SW 4, TYPE 2	

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6-1. SYSTEM CONTROL MICROPROCESSOR PIN FUNCTION (MB-712 BOARD IC501 MB89094)

PIN NO.	PIN NAME	I/O	FUNCTION
1	N.C		NOT USED. OPEN
2	CLK32	I	CRYSTAL OSCILLATOR (32 kHz) INPUT
3	GND	I	GND
4	GND	I	GND
5	2FSC	I	2 fsc (7.159 MHz) INPUT
6	N.C		NOT USED. OPEN.
7	Vss	I	GND
8	$\overline{MRST}$	I	RESET INPUT TERMINAL (L: RESET)
9	$\overline{FREQ}$	I	PHILLIPS CODE (FRAME NO.) READ OUT ENABLE INPUT
10	FQACK	O	PHILLIPS CODE, SUBQ (SUB CODE) DATA OUTPUT CONTROL (H: DATA OUTPUT)
11	FQSEL	O	PHILLIPS CODE/SUBQ DATA SELECT (L: SUBQ)
12	JPCTRL	O	1 TRACK JUMP (1TJ)/MULTI TRACK JUMP (MTJ) SELECT SIGNAL OUTPUT (H: 1TJ)
13	SPLOCK	I	SPINDLE SERVO LOCK SIGNAL (H: DURING SPINDLE SERVO IS LOCKING)
14	TBCHOLDIN	O	CHROMA TBC CONTROL SIGNAL OUTPUT
15	SCOR	I	H WHEN SUB CODE SYNC IS DETECTED
16	$\overline{PB\ V}$	I	PLAYBACK V SYNC SIGNAL INPUT
17	$\overline{REF\ V}$	I	REFERENCE V SYNC SIGNAL
18	ALT	O	INTERNAL A REGISTER LATCH OF EXPANSION OUTPUT PORT IC (IC502 ON MB-712 BOARD) OUTPUT
19	BLT	O	INTERNAL B REGISTER LATCH OF EXPANSION OUTPUT PORT IC (IC502 ON MB-712 BOARD) OUTPUT
20	$\overline{BUSY}$	I	COMMUNICATION ENABLE SIGNAL FROM MODE CONTROL MICROPROCESSOR (H : COMMUNICATION ENABLE)
21 – 24	N.C		NOT USED. OPEN
25	CLSCS	O	CHIP SELECT SIGNAL OUTPUT FOR CLS DT (PIN ㉘) SIGNAL
26	SPDLPLS	O	SPINDLE PULSE DRIVE SIGNAL OUTPUT (H: SPINDLE FREE-RUN)
27	TBRKMON	O	SERVO IC BRAKE MONITOR (H: BRAKE ON). NOT USED
28	PULL UP +5V	I	+5 V
29	CLSDT	I	CLV SCAN V SYNC COUNTER SERIAL DATA FROM IC502 INPUT. NORMALLY L. WHEN CLS CS (PIN ㉙) IS H, DATA IS IN. CLOCK IS SET CK (PIN ㉛)
30	SETDT	O	SERIAL DATA OUTPUT TO DSP (DIGITAL SIGNAL PROCESSOR) IC (IC203 ON MB-712 BOARD) AND EXPANSION OUTPUT PORT IC
31	SETCK	O	SERIAL TRANSFERRING CLOCK TO DSP IC AND IC502
32	SPDLFG1	I	SPINDLE FG INPUT 1 (1 ROTATION: 12WAVES)
33	CG V	I	CGV SYNC SIGNAL
34	LD SEARCH	O	SPINDLE SERVO CONTROL OUTPUT (H: DURING LD SEARCHING)
35	SPDL F/R	O	SPINDLE ROTATING DIRECTION SIGNAL OUTPUT (H: FWD)
36	AUX SEL	O	H WHEN THERE IS AUXILIARY INPUT. NOT USED. FIXED TO L
37	JMP TRIG	O	TRACK JUMP TRIGGER PULSE OUTPUT
38	ANALOG	O	AUDIO ANALOGUE/DIGITAL SELECT (H: ANALOGUE, L: DIGITAL)
39	CDG	I	NOT USED. CONNECTED TO GND
40	CDG MUTE	O	NOT USED. OPEN.
41	MTJ	I	TRACKING PULSE OUTPUT FOR MTJ. NORMALLY INPUT, OUTPUT DURING JUMPING TRACKS (L: FWD)
42	MTF ON/OFF	O	MTF CORRECTION ON/OFF SIGNAL (H: MTF ON)
43	$\overline{TRK\ OFF}$	O	PUT OFF SERVO IC TRACKING CONTROL (L: TRACKING OFF)
44	N.C	O	NOT USED. OPEN
45	GMUTE	O	ON CLV SCAN, GRAY PICTURE MUTE CONTROL OUTPUT (L: PLAYBACK PICTURE) (H: GRAY PICTURE)
46	N.C		NOT USED. OPEN
47	$\overline{CAV}$	O	H: CAV DISC, L: OTHERS OR UNIDENTIFIED
48	FOK	I	FOCUS LOCK SIGNAL INPUT (H: FOCUS LOCK)
49	Vcc	I	+5 V POWER SUPPLY
50	$\overline{BUSY}$	I	COMMUNICATION ENABLE SIGNAL FROM MODE CONTROL MICROPROCESSOR (H: COMMUNICATION ENABLE)
51	$\overline{TV/DISC}$	O	RF TV/DISC SELECT (H: TV, L: DISC). NOT USED. OPEN
52	SLED FWD	O	SLED FWD FORCED MOVE SIGNAL OUTPUT FROM PORT (H: FWD MOVE)
53	SLED REV	O	SLED REV FORCED MOVE SIGNAL OUTPUT FROM PORT (H: REV MOVE)
54	$\overline{MMICS}$	O	SERIAL COMMUNICATION CHIP SELECT SIGNAL OUTPUT TO MODE CONTROL MICROPROCESSOR
55	LOADING	O	TRAY LOADING DRIVE
56	UN LOADING	O	TRAY EJECT DRIVE
57	N.C		NOT USED. OPEN
58	Vss	I	GND
59	LINE MUTE	O	AUDIO OUTPUT MUTE SIGNAL OUTPUT (H: MUTE)
60	SLED SPEED	O	SLED DRIVE SPEED CHANGE (L: SLOW)
61	$\overline{SV\ DSP\ RST}$	O	RESET OUTPUT TO (L: RESET) SERVO IC (IC401 ON MB-712 BOARD), DSP IC AND D/A CONVERTER (IC201 ON MB-712 BOARD).
62	LD ON	O	LASER DIODE ON/OFF SIGNAL (H: ON EMITTING)
63	$\overline{CD/LD\ CDV}$	O	L: PLAYING CD OR AUDIO PART OF CDV. H: OTHERS
64	SLED MODE	O	SLED CONTROL OUTPUT
65	SIDE A/B	O	TILT SERVO SIDE SELECT (A: H, B: L)
66	$\overline{T/H\ SV}$	O	TILT/HIGHT SELECT (L: TILT)
67	LCSW1	I	LOADING/CHUCKING POSITION SENSOR INPUT 1
68	$\overline{LD\ LED}$	O	LED EMITTING SIGNAL FOR DISC DISCRIMINATION
69	LCSW3	I	LOADING/CHUCKING POSITION SENSOR INPUT 2
70	LCSW2	I	LOADING/CHUCKING POSITION SENSOR INPUT 3
71	SPDL FG2	I	SPINDLE FG INPUT 2
72	TILT LIMIT	I	TILT UP/DOWN LIMIT SW INPUT
73	TILT CTR	I	TILT CENTOR POSITION SW INPUT
74	MECH SI	I	32 BYTE SERIAL TRANFERRING DATA INPUT
75, 76	N.C		NOT USED. OPEN
77	MECH SI	I	32 BYTE SERIAL TRANFERRING DATA OUTPUT. SERIAL DATA INPUT FROM MODE CONTROL MICROPROCESSOR
78	MECH SO	O	32 BYTE SERIAL TRANFERRING DATA INPUT. SERIAL DATA OUTPUT TO MODE CONTROL MICROPROCESSOR
79	MECH CLK	O	32 BYTE SERIAL TRANFERRING CLOCK
80	T CNT	I	JUMPING TRACKS COUNTING SIGNAL INPUT. NOT USED
81, 82	N.C		NOT USED. OPEN
83	AVss	I	GND
84	LDDET	I	A/D INPUT THERE IS DISC OR NOT, 8/12 INCH DETECTION
85	CDV/FRLMT	I	A/D INPUT SLED POSITION INFORMATION (CDV)
86	CD ABLD	I	A/D INPUT SLED POSITION INFORMATION (CD, ALD, BLD)
87	INLIMIT	I	A/D INPUT SLED POSITION INFORMATION (INLIMIT)
88	$\overline{DSPLT}$	O	LATCH SIGNAL FOR DSP IC OUTPUT
89	MUTG	O	DSP MUTE SIGNAL (H: MUTE)
90	LOCK	I	FRME SYNC (EFM) LOCK SIGNAL (Hi LOCK)
91	SENSE	I	VARIOUS SENSE INPUT SIGNAL FROM DSP
92	AVcc	I	+5 V POWER SUPPLY
93	$\overline{EMP\ ON}$	O	EMPHASIS SELECT SIGNAL OUTPUT (L: EMPHASIS ON)
94	N.C	O	NOT USED. OPEN
95	A MUTE 2	O	L CH AUDIO OUTPUT MODE SELECT *
96	A MUTE 1	O	R CH AUDIO OUTPUT MODE SELECT *
97	$\overline{CX}$	O	CX ON/OFF CONTROL OUTPUT (L: CX ON)
98	N.C		NOT USED. OPEN
99	$\overline{DSPSEL}$	O	SELECTS COMMUNICATION WITH DSP (L: CONNECT, H: SEPARATE)
100	Vcc	I	POWER SUPPLY TERMINAL (+5 V)

* AUDIO OUTPUT MODE SELECT

A MUTE 1		L	L	H	H
A MUTE 2		L	H	L	H
MODE		STEREO	MONO (L)	MONO (R)	MUTE
AUDIO OUTPUT	L	L/CH1	L/CH1	R/CH2	MUTE
	R	R/CH2			

6-2. EXPANSION OUTPUT PORT IC PIN FUNCTION (MB-712 BOARD IC502 MB606F06)

PIN NO.	PIN NAME	I/O	FUNCTION
1	SP OFF	O	SPINDLE MOTOR ON/OFF SIGNAL OUTPUT (H: SPINDLE MOTOR ON)
2	Vss		GND
3	TBC MUT	O	TBC MUTE SIGNAL OUTPUT
4	TBC REFH	O	REFERENCE HORIZONTAL SYNC. SIGNAL FOR TBC OUTPUT
5	PBCS	I	PB COMPOSITE V, H SYNC. SIGNAL INPUT
6	SP RHO	O	REFERENCE H SYNC. SIGNAL FOR SPINDLE SERVO OUTPUT
7	SP RHI	I	REFERENCE H SYNC. SIGNAL FOR SPINDLE SERVO INPUT
8	CNT2	O	TBC CONTROL OUTPUT (H: LINE SYSTEM, L: BURST SYSTEM)
9	JUMP TGL	O	JUMP TOGGLE OUTPUT
10	SYEX	O	SYNC. SIGNAL FOR CHARACTER GENERATOR SELECT. NOT USED
11	CGV	O	V SYNC. GENERAL FOR CHARACTER GENERATOR OUTPUT. NOT USED
12	Vss		GND
13	SELH	O	H SYNC. SIGNAL FOR CHARACTER GENERATOR (IC011 ON MB-712 BOARD) OUTPUT
14	XPHS	O	PB H SYNC. SIGNAL OUTPUT. NOT USED
15	SP PBHO	O	PB H SYNC. SIGNAL FOR SPINDLE SERVO OUTPUT
16	SP PBHI	I	PB H SYNC. SIGNAL FOR SPINDLE SERVO INPUT
17	HS	O	CENTER OF ECCENTRICITY OUTPUT. NOT USED
18	MEM REFH	O	REF H OUTPUT FOR THE SET WITH MEMORY (NOT RESET). NOT USED
19	FSC	O	fsc (3.579545 MHz) OUTPUT
20	XOUT	O	4 fsc (14.31818 MHz) OUTPUT
21	XIN	I	4 fsc (14.31818 MHz) INPUT (CLOCK)
22	HD	I	H SYNC. SIGNAL FOR DIGITAL TBC INPUT
23	Vss		GND
24	V MUTE	O	VIDEO MUTE SIGNAL OUTPUT
25	V MUTE2	O	SIGNAL FOR ADDING REF. V SYNC. SIGNAL TO PLAYBACK VIDEO SIGNAL DURING CLV SCANNING
26	G BURST	O	BURST SIGNAL (3.58 MHz) FOR GRAY PICTURE GENERATION DURING CLV SCANNING
27	PC OUT1	O	SPINDLE SERVO FORCED ACCELERATION/DECELERATION SIGNAL OUTPUT. (H: ACCELERATION, L: DECELERATION, Hiz: OTHERS)
28	PC OUT2	O	SPINDLE SERVO H SERVO ERROR OUTPUT
29	TBC H	I	H SYNC. SIGNAL AFTER TBC CORRECTION FOR CHARACTER GENERATOR INPUT
30	DS GATE	O	GATE SIGNAL FOR READING OUT PHILLIPS CODE (FRAME NO.)
31	DATA	I	PHILLIPS CODE DATA INPUT
32	V MUTE1	O	BLANKING V SYNC. SIGNAL OF PLAYBACK VIDEO SIGNAL DURING CLV SCANNING
33	V_{DD}		+5 V
34	DLRH	O	GRAY SIGNAL FOR GENERATING GRAY PICTURE DURING CLV SCANNING
35	GRH	O	H SYNC. SIGNAL FOR GENERATING GRAY PICTURE DURING CLV
36	SP UNLOCK	O	SIGNAL FOR SETTING BY MECHANISM CONTROLLER OUTPUT WHEN SPINDLE IS UNLOCKED
37	8/$\overline{12}$	O	LD DISC SIZE SET OUTPUT. (H: 8 INCHES, L: 12 INCHES) NOT USED
38	CD/$\overline{LDCDV}$	O	DISC TYPE SET OUTPUT H: PLAYBACK CD OR AUDIO PART OF CDV L: PLAYBACK LD OR VIDEO PART OF CDV
39	CDV	O	SPINDLE SERVO MODE SET (H: VIDEO PART OF CDV)
40	FGMD	O	SPINDLE SERVO MODE SET (H: FG MODE (WHILE COUNTING SPINDLE FG, FORCING TO ACCELERATE/DECELERATE SPINDLE MOTOR))

PIN NO.	PIN NAME	I/O	FUNCTION
41	HP OUT	O	HOLD PULSE OUTPUT. NORMALLY OUT. PULSE OUTPUT DURING JUMPING TRACKS
42	Vss		GND
43	SV CLK	O	CLOCK FOR SERVO IC (IC401 ON MB-712 BOARD). 1/8 fsc (APPROX. 450
44	JMP	I	TRACK JUMP CONTROL SIGNAL INPUT. (GATE FOR HP OUT)
45	SET CLK	I	INTERNAL A, B REGISTER CLOCK INPUT FROM SYSTEM CONTROL MICROPROCESSOR (IC501 ON MB-712 BOARD)
46	GVID	I	GRAY PICTURE CONTROL SIGNAL INPUT DURING CLV SCANNING (H: GRAY PICTURE, L: PLAYBACK PICTURE)
47	SET DT	I	INTERNAL A, B REGISTER SERIAL DATA INPUT FROM SYSTEM
48	CLS DT	O	CLV SCAN V SYNC. COUNTER DATA OUTPUT TO SYSTEM CONTROLLER. NORMALLY L. DATA OUTPUT WHEN CLS CLK (PIN ㊾) IS H. CLOCK IS SET CLK (PIN ㊾)
49	CLS CLK	I	CLOCK FOR READING OUT CLV SCAN V SYNC COUNTER DATA CONTROL SIGNAL INPUT
50	B LD	I	INTERNAL B REGISTER LATCH INPUT
51	A LD	I	INTERNAL A REGISTER LATCH INPUT
52	Vss		GND
53	$\overline{REF\ V}$	O	REFERENCE V SYNC. SIGNAL OUTPUT
54	$\overline{PB\ V}$	O	PLAYBACK V SYNC. SIGNAL OUTPUT
55	TBC HOLD	I	CHROMA TBC CONTROL SIGNAL INPUT
56	SP LOCK	O	SPINDLE SERVO LOCK SIGNAL OUTPUT (H: DURING LOCKING). NOT USED
57	JP CTL	I	TRACK JUMP SELECT SIGNAL INPUT (H: 1 TRACK JUMP, L: MULTI TRACK JUMP)
58	FQSEL	I	PHILLIPS CODE/SUBQ (SUB CODE) SELECT SIGNAL INPUT (L: SUBQ)
59	FQACK	I	PHILLIPS CODE, SUBQ DATA OUTPUT CONTROL (H: DATA OUTPUT)
60	$\overline{F\ REQ}$	O	PHILLIPS CODE READING OUT ENABLE SIGNAL OUTPUT
61	$\overline{MRST}$	I	SYSTEM RESET INPUT (L: RESET)
62	FSC2	O	2 fsc (7.159 MHz) OUTPUT
63	Vss		GND
64	FH2	O	2 fH (3.15 kHz). CARRIER FOR SPINDLE MOTOR PWM DRIVE CIRCUIT
65	$\overline{DSPSEL}$	I	CLOCK CONTROL SIGNAL FOR DSP IC (IC203 ON MB-712 BOARD) (L: CONNECTED TO DSP)
66	FQCLK	I	CLOCK FOR READING OUT PHILLIPS CODE, SUBQ DATA INPUT
67	D OUT	O	PHILLIPS CODE, SUBQ CODE SERIAL DATA OUTPUT
68	SUBQ CLK	O	SUBQ TRANSFERRING CLOCK
69	SUBQ	I	SUBQ DATA INPUT
70	DSP CLK	O	CLOCK FOR DSP IC OUTPUT
71	DOCINH	O	DROP OUT CORRECTION INHIBITION OUTPUT. NOT USED
72	CLV1	O	SPINDLE SERVO GAIN MONITOR OUTPUT. NOT USED
73	V_{DD}		+5 V
74	CLV2	O	SPINDLE SERVO GAIN MONITOR OUTPUT. NOT USED
75	REF HE	O	REF HE MONITOR OUTPUT. NOT USED
76	REF HC	O	REF HC MONITOR OUTPUT
77	HMSK	O	PHILLIPS CODE MASKING SIGNAL MONITOR OUTPUT
78	BQ6	O	B REGISTER D6 OUTPUT. NOT USED
79	BQ7	O	B REGISTER D7 OUTPUT. NOT USED
80	TEST	I	TEST MODE INPUT (H: TEST)

6-3. MODE CONTROL MICROPROCESSOR PIN FUNCTION (IF-703 BOARD IC301 MB89626P-G-159-SH)

PIN NO.	PIN NAME	I/O	FUNCTION
1	POWER CTRL	O	Power on/off control signal (H: Power on).
2	N. C		Not used.
3	LED SIDEA	O	SIDE A LED on/off signal (L: Lighting on).
4	LED SIDEB	O	SIDE B LED on/off signal (L: Lighting on).
5	LED REPEAT	O	REPEAT LED on/off signal (L: Lighting on).
6	N. C		Not used.
7	BEEP	O	Barcode audio signal.
8	MECH CLK	O	32byte serial clock to system control microprocessor (IC501 on MB-712 board).
9	MECH SI	O	32byte serial data output to system control microprocessor.
10	MECH SO	I	32byte serial data input from system control microprocessor.
11	A/D0	I	Key input. A/D port. (Note 1)
12	A/D1	I	
13	A/D2	I	
14	− 16 V MON	I	− 16 V monitor.
15	+5V MON	I	+5 V monitor.
16	MECH BUSY	O	Communication enable signal to system control microprocessor (L: Communicating).
17	MECH RST	O	Reset signal for system control microprocessor.
18	LED KEY LOCK	O	KEY LOCK LED on/off signal (L: Lighting on).
19	AVcc	I	EVER +5V power supply.
20	AVR	I	− 30 V high resisting pressure pull down terminal.
21	Avss		GND
22	REF V	I	Reference V sync signal.
23	MMI CS	I	32byte serial chip select signal from system control microprocessor (L: Communicating).
24	RX RDY	I	USART (Universal Synchronous Asynchronous Receiver Transmitter) interrupt signal (L: Interrupt).
25	BC IN	I	Barcode data input.
26	WIRED	I	L: when barcode remote commander is used wired.
27	RST	I	Reset signal input (L: Reset).
28	MOD0	I	Input terminal for specifying operation mode. Connected to GND.
29	MOD1	I	
30	X0	O	32 kHz crystal oscillation circuit.
31	X1	I	
32	Vss	I	GND
33 − 40	N. C		Not used.
41	D2B/232C	I	Model (function) distinction (H: D2B, L: RS-232C).
42	N. C		Not used.
43	DSR	I	RS232C data set ready signal input (L: Data set ready on).
44	TX RDY	I	USART transmitter ready signal input (H: Transmit possibility).
45	C/D	O	USART control/data control signal (H: Control signal, L: Data).
46	CS	O	USART chip select signal (L: Communicating).
47	WR	O	USART write control (L: Write in).
48	RD	O	USART read control (L: Read).
49	D7	I/O	USART two way data bath.
50	D6	I/O	
51	D5	I/O	
52	D4	I/O	
53	D3	I/O	
54	D2	I/O	
55	D1	I/O	
56	D0	I/O	
57	Vss	I	GND
58	AUDIO MUTE	O	Audio mute signal (H: Mute).
59	CG CLK	O	Serial clock to character generator (IC011 on MB-712 board).
60	CG SI	O	Serial data output to charactor generator.
61	CG CS	O	Serial chip select signal to charactor generator (L: Communicating).
62	DOOR SW	I	Door switch (S401 on FP-737 Board) input (H: Open).
63	SIRCS IN	I	SIRCS data (Remote commander) input.
64	Vcc	I	EVER +5 V power suplly.

Note 1: Key built in set reading A/D port.

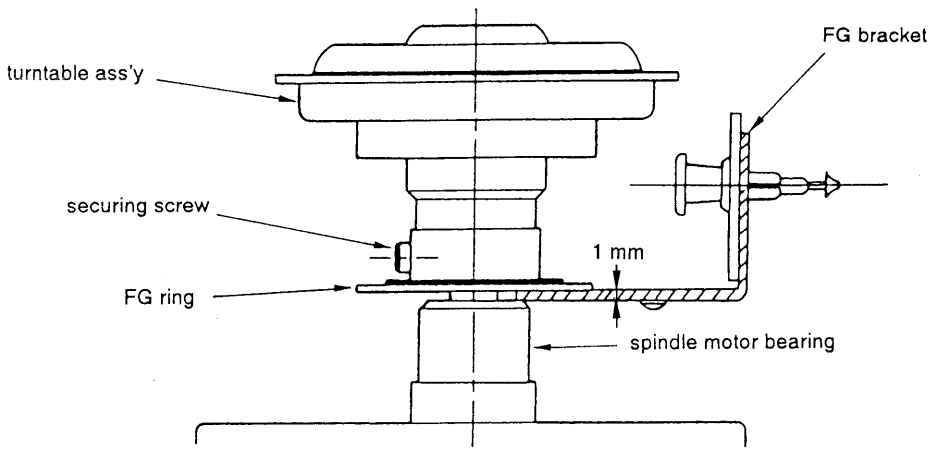
INPUT TERMINAL \ INPUT VOLTAGE	0 V	1 V	2 V	3 V	4 V	5 V
AD0	SIDE B (SW-731 S101)	PLAY (SW-731 S102)	SIDE A (SW-731 S103)	PAUSE (SW-731 S104)	STOP (SW-731 S105)	No key input
AD1	STILL/STEP ◀II (SW-731 S106)	STILL/STEP II▶ (SW-731 S107)	SCAN ◀◀ (SW-731 S108)	SCAN ▶▶ (SW-731 S109)		No key input
AD2	SCREEN COLOR (PW-713 S201)	OPEN/CLOSE (PW-713 S202)	POWER (PW-713 S203)		REPEAT (PW-713 S205)	No key input

SECTION 7
ADJUSTMENTS

7-1. MECHANICAL ADJUSTMENT

1-1. TURNTABLE ASSEMBLY HEIGHT ADJUSTMENT

1. Open the tray by turning the control gear secured on the right side of the set clockwise.
2. Remove chucking assembly.
3. Remove FG bracket with FG board.
4. Replace turntable assembly.
   Adjust turntable assembly height using FG bracket (1 mm thickness) as followings.
5. Fit FG bracket with FG board in its original position.



Insert FG bracket between spindle motor bearing and FG ring to set height and tighten securing screw.

7-2. ELECTRICAL ADJUSTMENTS

During these adjustments, see the parts arrangement diagram for adjustments on page 7-10.

2-1. LIST OF SERVICING JIGS

- Oscilloscope
- Color monitor TV
- Digital voltmeter
- Audio level meter
- Frequency counter
- Remote commander (RMT-M23A)
- LD alignment disc *HLV-8 (8-797-008-00)...NTSC
  * : REF7 is also available.
- CD alignment disc YEDS-18 (3-702-101-01)
- MD adjustment cable (J-6082-059-B)
- Hexagonal wrench
  (Tangential screwdriver: 7-700-766-04)
- Decentering screwdriver ϕ4 (J-6095-029-A)

2-2. CAUTIONS ON ADJUSTMENT

- Disc load/unload operation must not be performed when servicing with the unit laying down sideways.
  (Never press the OPEN and CLOSE buttons.)
- When laying the unit down sideways, perform adjustment with the left side down and turn the power on.
- When adjusting the servo system, be sure to set up the unit horizontally.

2-3. MD ADJUSTMENT CABLE (J-6082-059-B)

MD adjustment cable is used to adjust the servo system with connecting to CN401 on MB-712 board. Remove it except when adjusting the servo system.

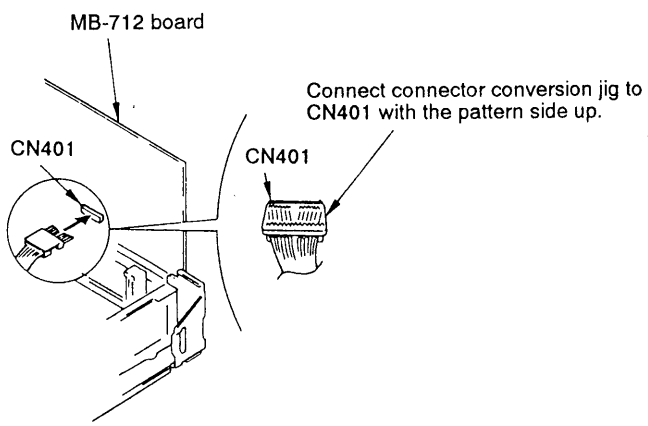


Fig. 7-2-1.

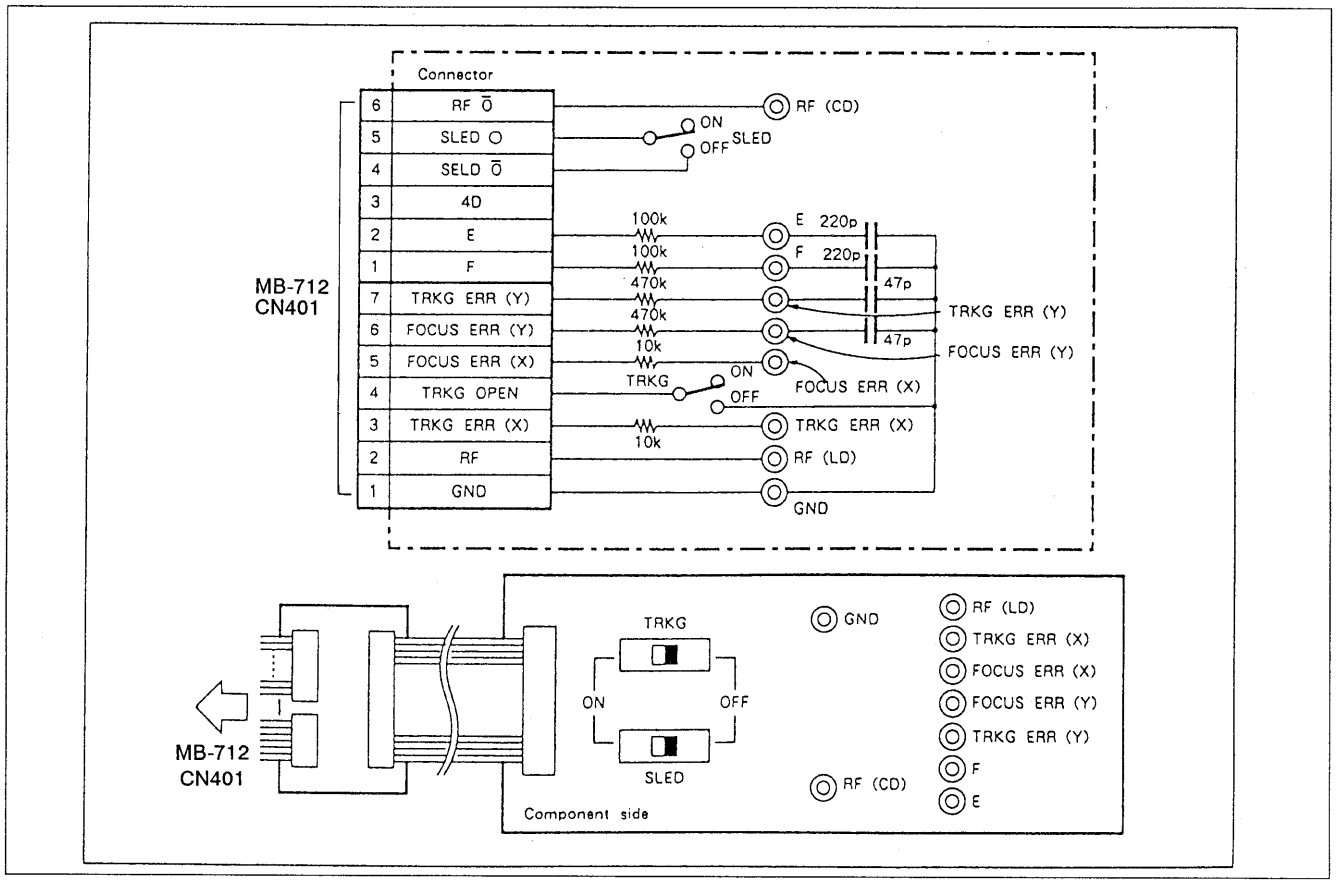


Fig. 7-2-2. MD Adjustment Cable

2-4. OPERATION OF THE MDP-1700AR WITH HIDDEN KEY FUNCTIONS

1. Explanation of the hidden key functions

Special control functions to be used for the test or some other purposes of the MDP-1700AR are available by pressing simultaneously multiple function keys on the main unit. The control functions available in this way are called "special key functions". The special key functions can be used in either of the following modes.

- the service mode, or
- the normal operation mode.

2. How to use "simultaneous main-unit-key-press functions"

The functions available by pressing simultaneously the multiple specific keys only on the main unit are called "simultaneous main-unit-key-press functions". These functions are to be used when a quick operation such as "forced reset" is required.

The following table lists the currently available simultaneous main-unit-key-press functions.

Table 7-2-1. List of simultaneous main-unit-key-press functions

Keys to be pressed on the main unit	Functions
STOP (■) key and reverse STILL/STEP (◀II) key and SCREEN COLOR key	Forced reset This function carries out initialization of the mode controller and turns off power forcibly. It is to be used if you want to reset the mode controller in the following case. • Something is wrong with the mode controller such that it operates with incorrect display. • Operation of the mechanisms is out of control. • Power cannot be turned off by pressing the power key. Note that this function should be used with care because it may turn off the power in a half way of the operation of the mechanisms.

2-5. SERVICE MODE

1. Explanation of the service mode

The functions for the use on reparation and maintenance (the service mode) are incorporated in the MDP-1700AR. The mode in which those functions are available is called "the service mode".
The following are the differences between the service mode and the normal operation mode.

(1) Special operations such as focusing search and sledding can be carried out.
(2) Power is not turned off automatically in an emergency condition of power off.

2. Entering the service mode

The following procedure shows how to enter the service mode.

(1) While the power is turned off, connect the test pin (TP501 for service mode setting) on the MB board of the main unit, to the ground.
(2) Turn on the power by pressing the power key of the main unit. Nothing is displayed on the screen at this moment.
(3) Disconnect the test pin (the connection was performed in step (1) above) from the ground.
The service mode can be started when the background color changes in violet. If the background color is blue or black, the service mode is not available yet. If so, restart the procedure from step (1) above.

3. Quitting the service mode

To quit the service mode, press the power key and turn off the power. If you cannot turn off the power in this way (the operation of the mechanisms is not complete), carry out the forced power off function by pressing the pause key and the power key on the main unit at the same time.

4. Operating with the special key functions

The special key functions in the service mode are available only under NO DISC and STOP conditions, for safety purposes.
Check that the indication for those conditions is displayed without flashing on the screen. In order to carry out the special key functions listed in table 7-2-1, in the status above, press the desired key such as PLAY or PAUSE on the main unit.
The sledding motion with the SIDE A or SIDE B key is effective only while holding the key pressed. However, the operation started with the PLAY or PAUSE key continues, once it is pressed, until you press the STOP key. While the unit is carrying out the special key function, the LED of auto resume of the main unit is lit.
Note that multiple special key functions cannot be started even if you press multiple keys at the same time.

Table 7-2-2. List of the special key functions

Key	Special key functions
SIDE A	Sledding in reverse direction (downward)
SIDE B	Sledding in normal direction (upward)
PLAY	Focusing search
PAUSE	Tilt servo ON
STOP	Stop special operations

The following are the details of the special key functions available with the MDP-1700AR.

(1) PLAY key for focusing search
Focusing search operation can be carried out repeatedly by holding down the PLAY key. There is no fault with the unit if the pick-up lens moves up and down.
Be sure to start the focusing search operation after checking the condition that the the sled is placed in appropriate position (at around the center of side A). To stop the focusing search operation, press the STOP key.

(2) SIDE A key for sledding in reverse direction
The sled can be moved in reverse direction (center of side B, to edge of side B, to edge of side A, and then to center of side A) after completing initialization of the tilt (the tilt is placed in neutral position) by holding down the SIDE A key. To stop the sledding in reverse direction, release the SIDE A key.

(3) SIDE B key for sledding in normal direction
As contrary to item (2) above, the sled can be moved in normal direction (center of side A, to edge of side A, to edge of side B, and then to center of side B). This movement of the sled is desired when replacing the optical part. To stop the sledding in normal direction, release the SIDE B key.

(4) PAUSE key for tilt servo ON
The tilt servo is activated while holding down the PAUSE key. Move the sled to around the center of side A with the SIDE A and SIDE B keys, and put a CD or equivalent on the tray so that it screens the skew sensor. Then, if the tilt moves by pressing the PAUSE key, operation is normal.
The tilt can be placed back in neutral position by moving the sled with the SIDE A and SIDE B keys. To deactivate the tilt servo, press the STOP key.

2-6. POWER SUPPLY CHECK (PS-716 BOARD)

Mode	Stop
Measuring equipment	Digital voltmater
UNREG +16 V check	
Measurement point	Pin ① of CN051 (Pin ②, GND)
Specified value	15.5 ± 1.0 V
UNREG −16 V check	
Measurement point	Pin ③ of CN051 (Pin ②, GND)
Specified value	−16.5 ± 1.0 V
REG +5 V check	
Measurement point	Pin ⑤ of CN051 (Pin ④, GND)
Specified value	5.1 ± 0.5 V
REG −5 V check	
Measurement point	Pin ⑦ of CN051 (Pin ④, GND)
Specified value	−5.1 ± 0.5 V
POWER MUTE check	
Measurement point	Pin ① of CN055 (Pin ② of CN031, GND)
Specified value	15.7 ± 1.0 V
EVER 5 V check	
Measurement point	Pin ④ of CN031 (Pin ②, GND)
Specified value	5.0 ± 0.3 V

- Confirm that the power supply voltages satisfy the respective specified values.

2-7. SYSTEM CONTROL SYSTEM ADJUSTMENT

2-7-1. Master Clock Adjustment (MB-712 Board)

Mode	Stop
Measurement point	Pin ⑲ of IC502
Measuring equipment	Frequency counter
Adjusting Element	CT501
Specified value	3,579,545 ± 10 Hz

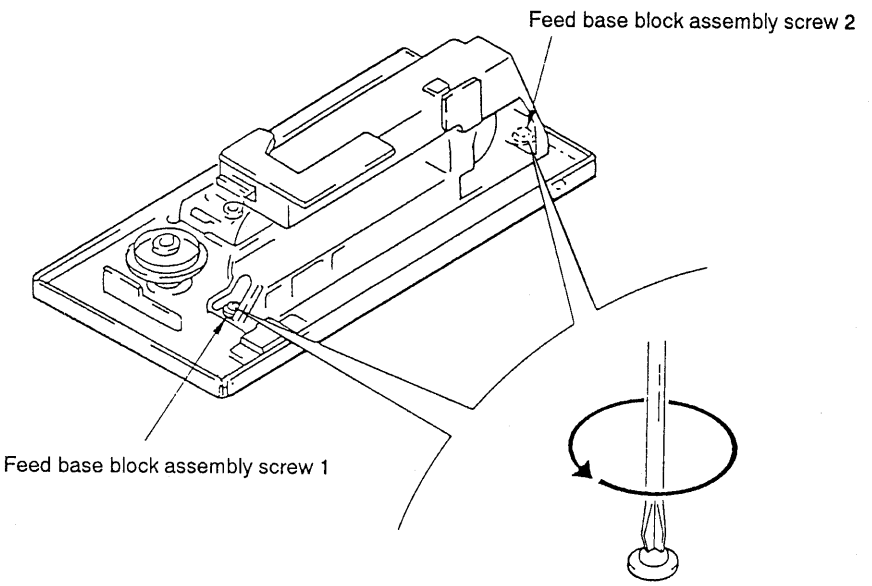
Adjustment method:

1) Adjust CT501 to 3,579,545 ± 10 Hz.

2-8. SERVO SYSTEM ADJUSTMENTS

2-8-1. CD Adjustment

1) Loosen the screws of feed base block assembly.



Loosen the screw about a turn from the state of being tight.

Fig. 7-2-3.

2) Playback the CD alignment disc (YEDS-18) to press the Pause button about 3 seconds later.
3) Connect the oscilloscope to LD RF on the MD adjustment cable to see if the waveform shown below appears.

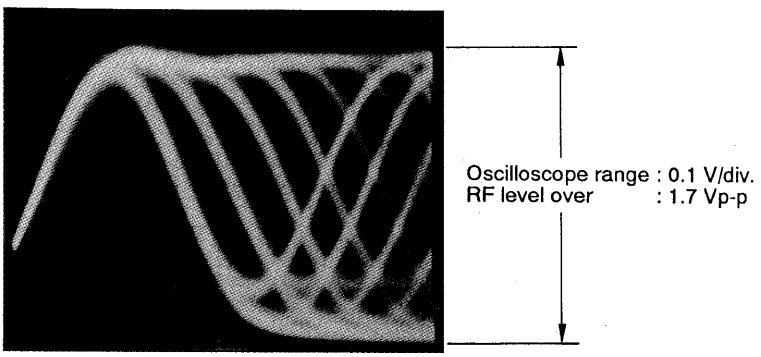


Fig. 7-2-4.

4) Insert the A TAN screw with hexagonal wrench 2.6 into the hole of top surface of chucking assembly to adjust so that RF Level is maximum. (Over 1.7 Vp-p)

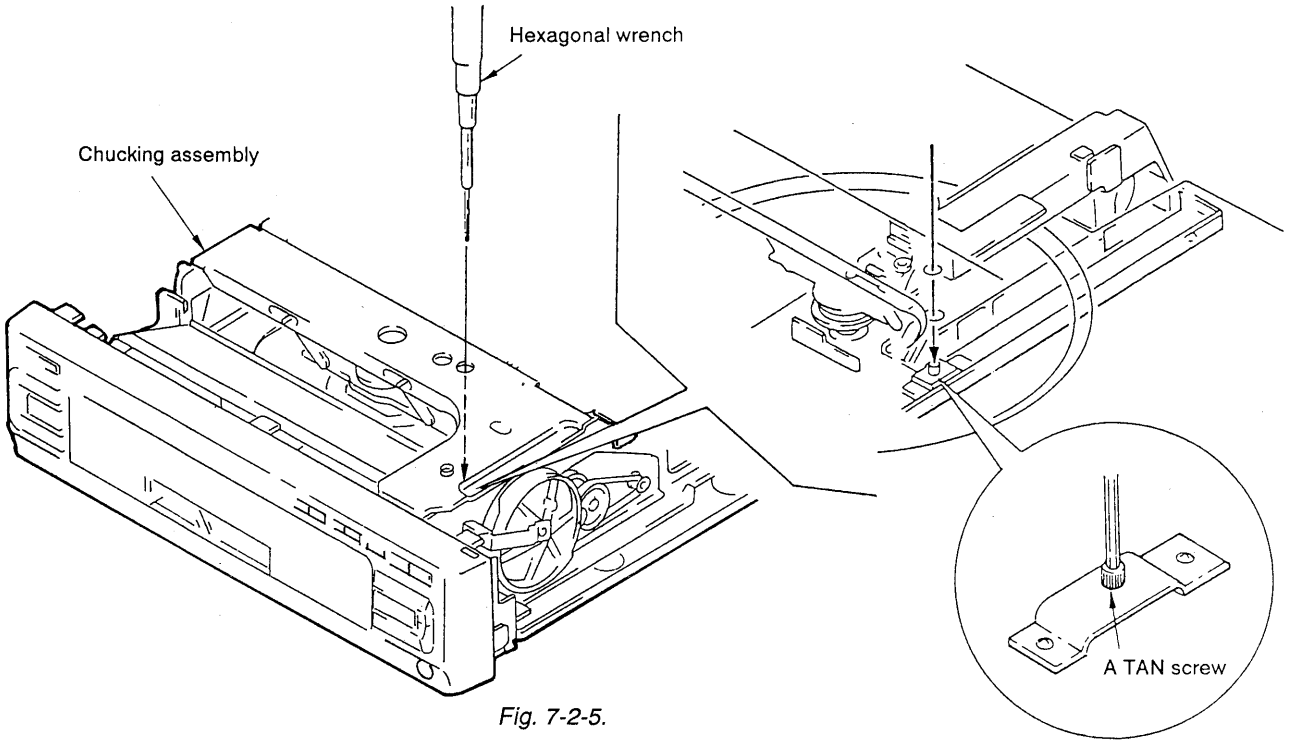
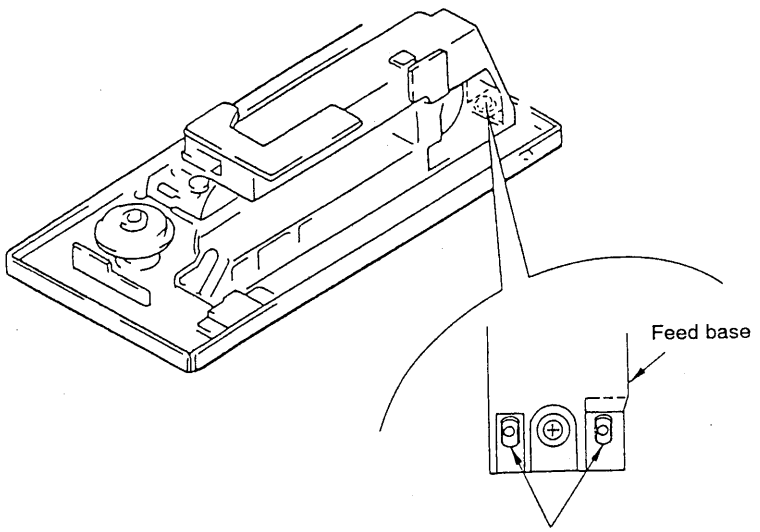


Fig. 7-2-5.

5) Insert decentering screwdriver into the feed base block assembly for RD adjustment.



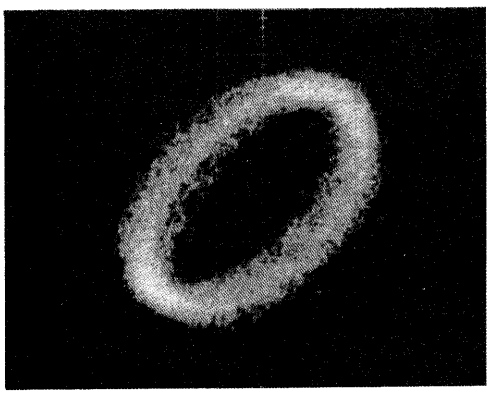
Insert the decentering screwdriver to either one of the holes for adjustment.

Fig. 7-2-6.

6) Take the DISC out to tighten the 2 screws of the feed base.
7) Apply suitable locking compound to A TAN screw.

Terminal E, F/TRK, SLED OFF
Oscilloscope X/Y Lissagous range
Difference within 35° with each 20 mV/div.

Before the adjustment.



Make the figure straight.

After the adjustment.

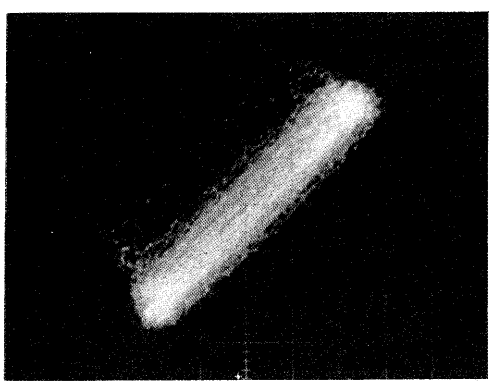
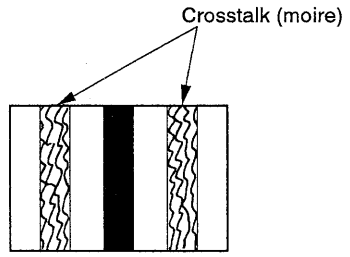


Fig. 7-2-7.

2-8-2. LD Side A Tilt Balance Adjustment

1) Play the LD alignment disc (HLV-8).
2) Pause at Frame 770.
   Check that the vertical bar appears on TV monitor and turn RV401 to make right and left crosstalk (moire) the same level and minimum. (Side A tilt balance adjustment)



Frame 770 & Frame 130

Fig. 7-2-8.

3) Pause at Frame 130 to check that the moire is minimum. (Do not turn RV401 at this time.)
4) Tracking gain and focus gain adjustments are not necessary.
   – Already adjusted at the optical pick-up block side –
5) Check the tracking balance.
   Measure the registance at the Y terminal of TRACKING ERR on the MD adjustment cable with oscilloscope.

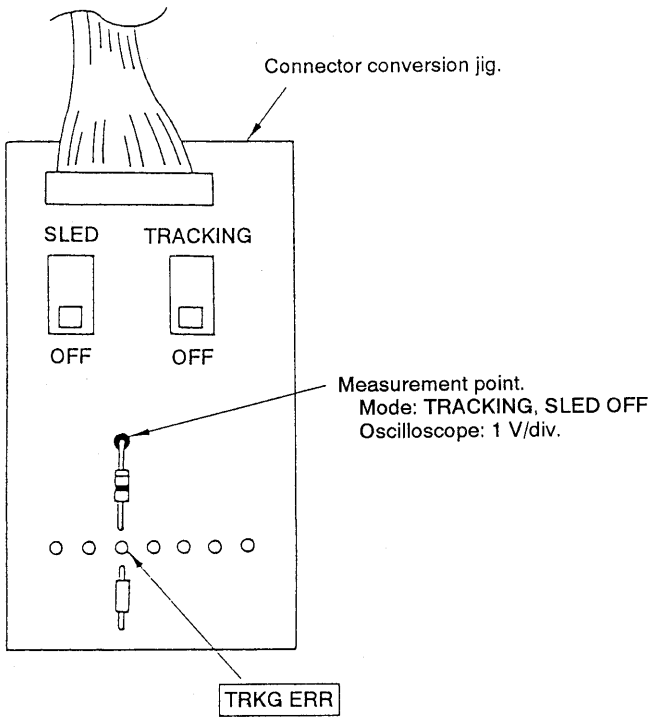
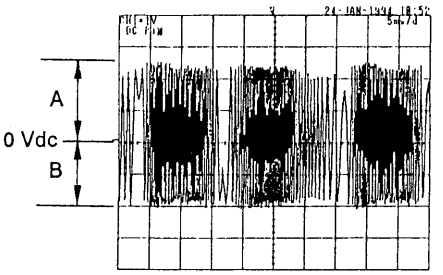


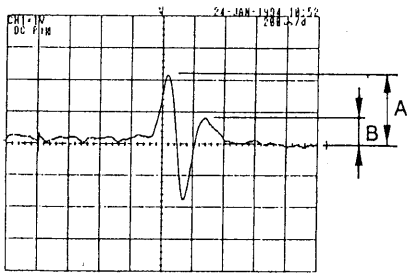
Fig. 7-2-9. Check the TRACKING BALANCE



check that it meets $-5 \leqq \frac{A-B}{2(A+B)} \times 100(\%) \leqq 8$

Fig. 7-2-10.

6) Then turn on the TRACKING and SLED to check the waveform of 1 track jump in STILL at the chapter3 (#2201)

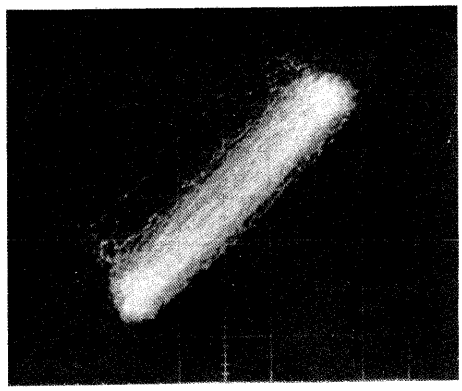


check that it meets $B \leqq \frac{1}{2}A$

Fig. 7-2-11.

2-8-3. LD Side B Tilt Balance Adjustment

1) Loosen RD of side B on the feed base and TAN screw. (Hexagonal screw 2.6)
2) Insert the alignment disc to playback with side B at CAV side and pause at Frame 770. Check that the same block bar as the crosstalk adjustment at the side A on monitor. (See Fig. 7-2-8.)
3) Insert the tip of the decentering screwdriver to the B TAN adjustment hole to adjust that the crosstalk is minimum.
4) Then in the same way, adjust with RV402 so that the crosstalk is minimum, and at this time the level at track jump should be maximum.
   (Side B tilt balance adjustment)
5) Check that crosstalk at Frame 130 is minimum.
6) Send the disc to Chapter 3 (Frame 2201) to pause.
7) Turn off the SLED and TRACKING to adjust inserting the decentering screwdriver to BRD adjustment hole so that the Lissagous waveform meets the standard.
   Make not more than 1 turn in the TAN adjustment.



Jig terminal : E, F
Oscilloscope : X/Y lissagous 20 mV/div.
Phase difference : Within 35°

Fig. 7-2-12.

8) Take out the disc to tighten B TAN, RD screw.

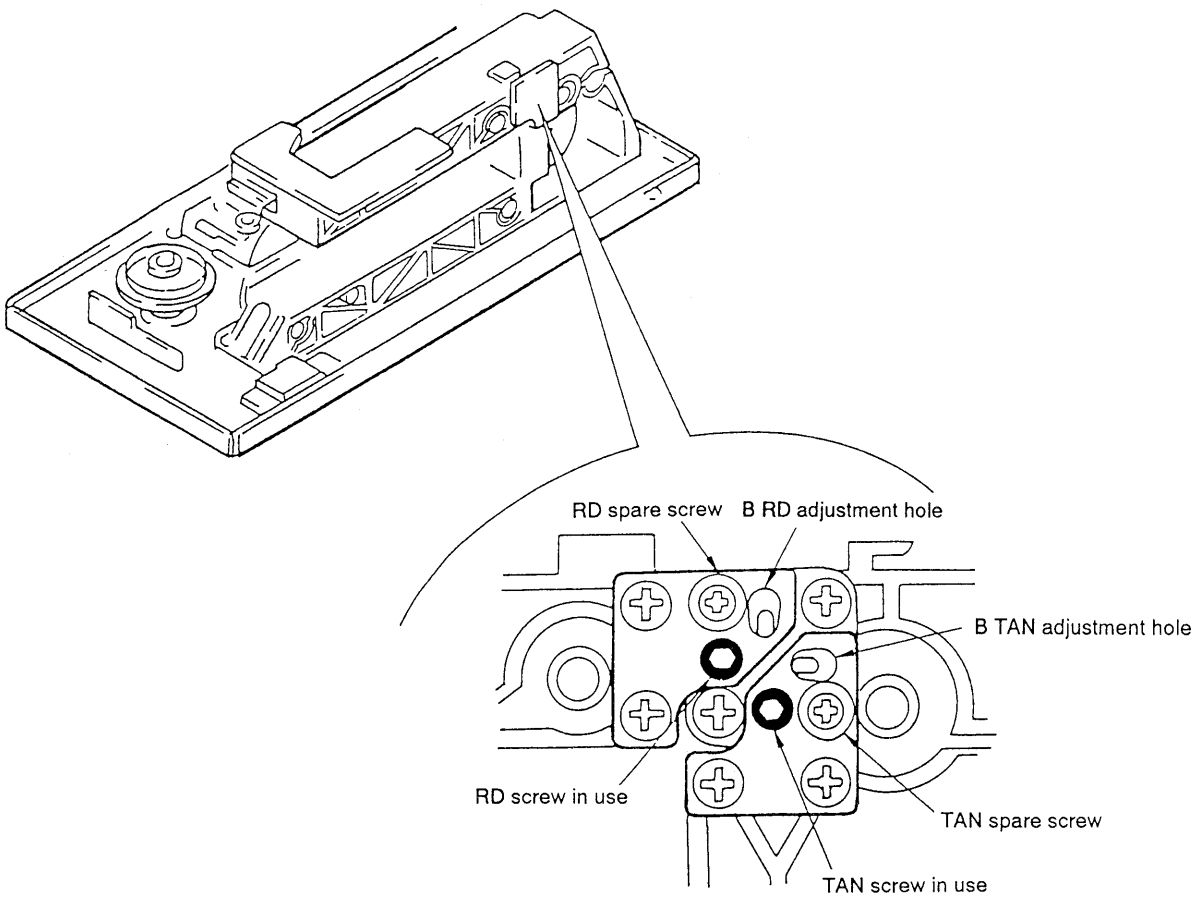


Fig. 7-2-13.

2-9. VIDEO SYSTEM ADJUSTMENTS

2-9-1. Burst Gate Position Adjustment (MB-712 Board)

Mode	Pause
Signal	Frame 4100 (Color bar)
Measurement point	Pin ㉓ of IC007
Adjustment element	RV002
Specified value	8.5 ± 0.1 μsec

Adjustment method:

1) Press PAUSE (❚❚) button.
2) Search the frame 4100.
3) Adjust RV002 so that tw is 8.5 ± 0.1 μsec.

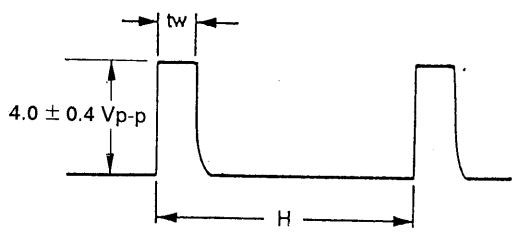


Fig. 7-2-14.

2-9-2. REF H Adjustment (MB-712 Board)

Mode	Pause
Signal	Frame 4100 (Color bar)
Measurement point	CH1: Pin ㉕ of IC008 CH2: Pin ② of IC008
Measuring instrument	Oscilloscope (DC range)
Adjustment element	RV501
Specified value	Potential difference: 4.2 ± 0.1 Vdc

Adjustment method:

1) Press PAUSE (❚❚) button.
2) Search the frame 4100.
3) Adjust RV501 so that the electric difference between the center value of the TBC voltage (Pin ㉕ of IC008) and the VEE (Pin ② of IC008) is 4.2 ± 0.1 Vdc.

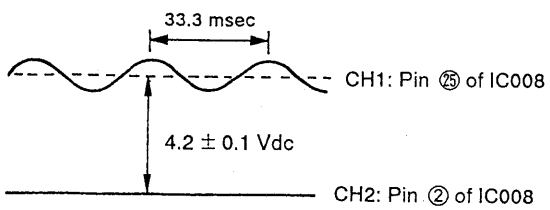


Fig. 7-2-15.

2-9-3. Color DOC Adjustment (MB-712 Board)

Mode	Pause
Signal	Frame 23500 (Yellow Green)
Measuring instrument	Monitor screen
Adjustment element	CT001
Specified value	Dropout section and surrounding section are of the same colors.

Preparations:

1) Paste a black tape onto the 1H interval of the outer most circumference of the LD reference disc CAV recording side (The side where the radial can be seen).
(Length: Approx. 10 mm)

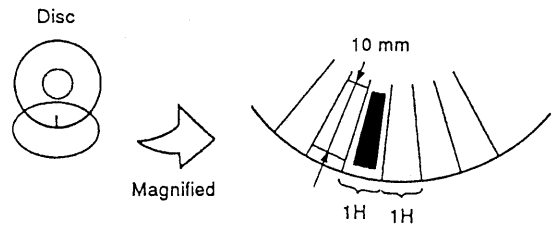


Fig. 7-2-16.

Adjustment method:

1) Press PAUSE (❚❚) button.
2) Search the frame 23500.
3) Adjust the color of the dropout section of CT001 to that of the surrounding section.

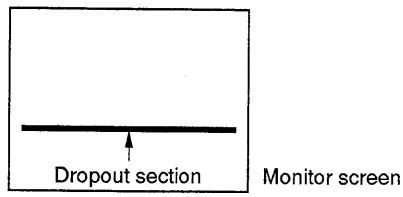


Fig. 7-2-17.

2-9-4. Video Output Level Adjustment (MB-712 Board)

Mode	Pause
Signal	Frame 4100 (Color bar)
Measurement point	J201(VIDEO OUT terminal) (Terminated to 75 Ω)
Measuring equipment	Oscilloscope
Adjustment element	RV001
Specified value	1.00 ± 0.03 Vp-p

Adjustment method:

1) Press PAUSE (❚❚) button.
2) Search the frame 4100 and apply a vertical bar signal.
3) Adjust RV001 for 1.00 ± 0.03 Vp-p.

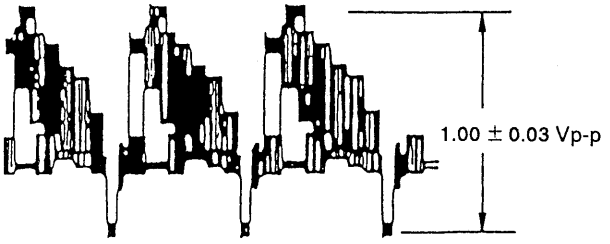
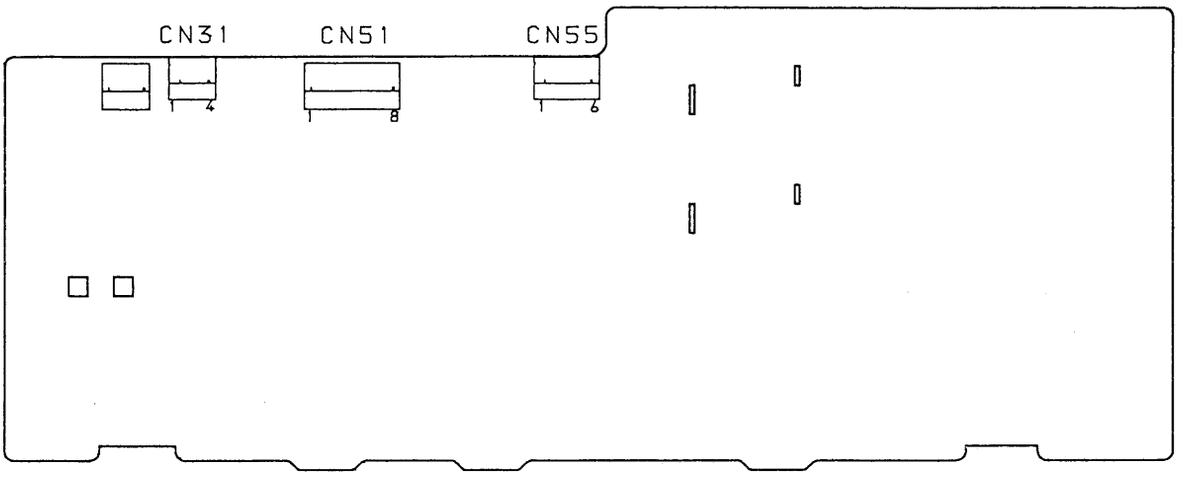


Fig. 7-2-18.

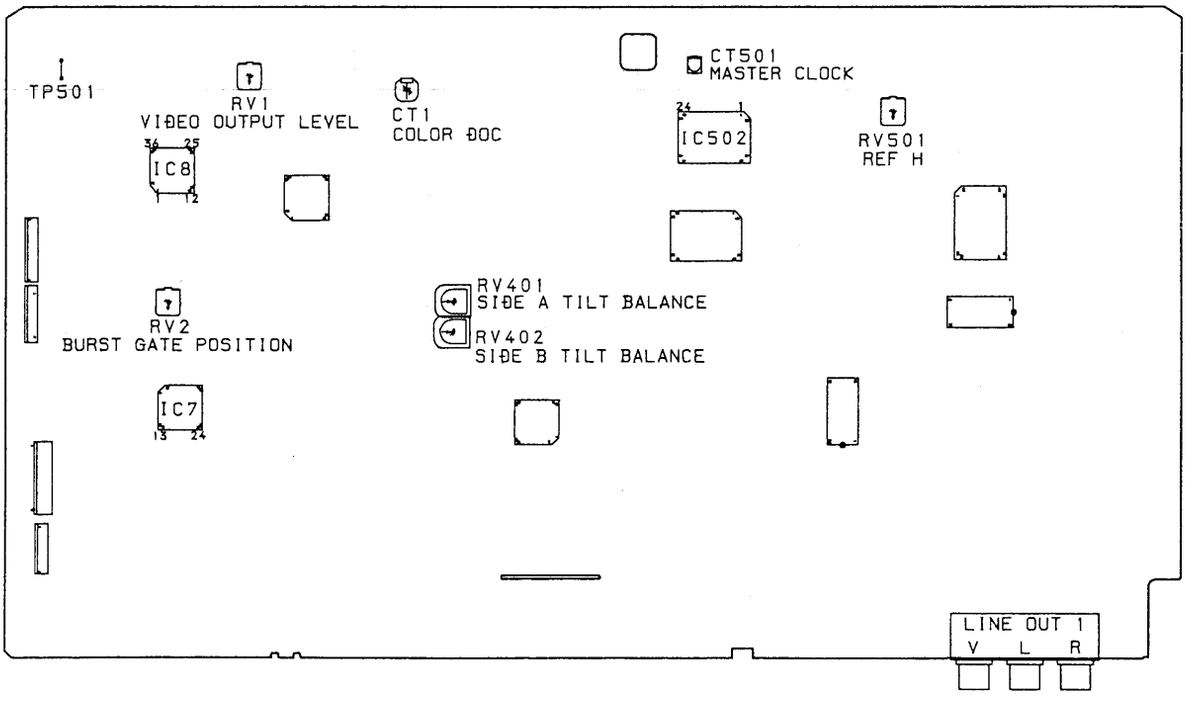
2-10. PARTS ARRANGEMENT DIAGRAM FOR ADJUSTMENTS

PS-716 BOARD (CONDUCTOR SIDE)

NOTE:CN31/51/55 ARE MOUNTED COMPONENT SIDE.



MB-712 BOARD (COMPONENT SIDE)



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